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No. 1.

ORIGINAL ARTICLES.

GOVERNMENT AIDS TO PUBLIC HEALTH.

Read in the Section of State Medicine, at the Forty-first Annual Meeting of the American Medical Association, at Nashville, Tenn., May, 1890.

BY WALTER WYMAN, A.M., M.D.,

SURGEON MARINE-HOSPITAL SERVICE, WASHINGTON, D. C.

At a recent meeting of a sanitary association, its President gave utterance to a sentiment which has often been expressed of late years in public bodies, to the effect that while the Government of the United States is most liberal in its provision for all ordinary, material welfare of its citizens, in matters of public health it is parsimonious and its aid is stinted. This, to my mind, appears unjust and has led me to make an inquiry as to what the Government, in its various branches, actually does for the public health.

Without going into greater detail than is necessary, it will be pertinent to mention, first, what has been and is being done to prevent the introduction and spread of epidemic disease; and under this head may be cited the recent establishment, on a broad plan, of the National Quarantine Service, at an expense of more than half a million dollars; the annual appropriations of fifty to eighty thousand dollars for the maintenance of the quarantine stations; the present epidemic fund to be used in case of emergency, amounting to about \$100,000, and also the fund for the relief of yellow fever sufferers, which is, in a sense, an aid to public health.

In the matter of scientific commissions and establishments, mention must be made of the recent commission of Surgeon George M. Sternberg, U. S. Army, whose thorough investigations into the methods of Freire and Carmona in their attempts at protective inoculation against yellow fever, are now of public record; and the commission of Dr. E. O. Shakespeare, for the purpose of investigating the causes of cholera during its last visitation in Spain.

As to scientific establishments, attention is called to the laboratory of the Marine-Hospital Service at Dry Tortugas, within the yellow fever belt, fitted with all the most recent appliances,

and intended for the special and continuous investigation of the cause of yellow fever; also to the very complete bacteriological laboratory attached to the U. S. Marine-Hospital at New York, in which are conducted investigations into the causes of disease, the value of germicidal agents, and the usual analyses and tests of a hygienic laboratory.

Mention must also be made of the laboratory of the Bureau of Animal Industry, in the Department of Agriculture, for the detection and prevention of the spread of diseases among animals, and its consequent service in preventing the consumption of diseased meat.

The laboratories of the Army and the Navy must also be enumerated. To the majority of physicians present reference only need be made to the work of the medical department of the U. S. Army in the establishment of its library and museum for the benefit of all, or to the Naval Museum of Hygiene, in whose laboratory chemical analyses of water and food are made, as well as bacteriological research.

Among the other establishments maintained by the National government for the preservation of public health, may be mentioned the Marine-Hospital Service, whose yearly treatment of 50,000 sailors in all parts of the country must surely have a decided effect upon the health of the body politic. It has been remarked by careful observers of the habits and condition of the sailor, that his physical condition has within late years very materially improved. Stress is laid upon this point because it is by no means improbable that a large proportion of the ordinary as well as contagious diseases of the human race receive their primal impulse among the lower classes of society, by whom cleanliness and health measures are disregarded. The expenditures of this service amount to about half a million of dollars yearly.

As to legislative enactments it may be said that very little additional action is necessary by Congress, if any, for the prevention of the introduction and spread of epidemic diseases throughout the United States. The recent passage of what is known as the Inter-State Quarantine Act marks an epoch in the history of National health legislation.

In the light of the above statements, it is interesting to look back into the history of quarantine legislation and to study the wants of the Nation as urgently expressed by the Quarantine Convention at Philadelphia in 1857, in Baltimore in 1858, in New York in 1859, in Boston in 1860, in Jacksonville in 1878, in Philadelphia in 1885, and in Montgomery in 1889. The cry of these conventions was for a uniformity in quarantine laws, and such uniformity, at least in times of epidemic, is now assured. Other legislation relating to the adulteration of beer, the adulteration of drugs, the adulteration of foods in general, has from time to time been proposed and enacted by Congress; and Congress in its management of the City of Washington set an example to all the cities of the world by being the first to make legal requirements regarding house drainage.

Although the above consideration is a hasty one, enough has been shown, I believe, to convince the ordinary observer that Congress does take an active interest in matters pertaining to the public health. It has been the custom in some quarters to continually decry our legislative Solons for their want of knowledge and interest in such matters, but it may be well to ask our sanitarians whether we should not cast the beam out of our own eye before we seek to pluck the mote out of the legislative eye. It has been said that a sanitary millenium can never be until there has been developed a new class of legislators, educated and aroused to the needs of public sanitation—sanitary legislators; but with equal truth it may be urged that there is need of another class of men, who may be called legislative sanitarians—men who in their eagerness for sanitary reform will yet have legislative wisdom, who will not be blind or indifferent to recognized laws and modes of procedure, nor to the ever present necessity of economic administration in this, as in all public matters. The legislative sanitarian will think twice before he lends his name to untried schemes, to experiments involving large outlay, the failure of which will bring discredit on his legislative friends. He will not blindly follow in the lead of others and cast his vote for schemes whose logical conclusions lead he knows not where. With the eye of the legislator as well as the sanitarian he will advocate reforms with due respect to institutions already existing and founded with a wisdom equal to his own, and when possible will invoke their aid rather than opposition. Sanitary laws, after all, form but one element in the scheme of general welfare, and they must be in harmony with their surroundings; they must catch the spirit of the other and even greater laws under which they are created.

In a recent letter commenting upon the passage of an Inter-State Quarantine Act, a distinguished sanitarian says: "It seems to me that it is very

much to be regretted, however, that the Act does not refer to the really dangerous diseases." The diseases he refers to as really dangerous are phthisis pulmonalis, diphtheria, scarlet fever, etc. The diseases mentioned in the Inter-State Quarantine Act are: cholera, yellow fever, small-pox, and plague. He says, further, "None of the diseases . . . more dangerous are mentioned in this Act, as might easily have been done by inserting after the word 'plague' the words 'or other diseases dangerous to the public health.'"

The point of the criticism is that diphtheria, phthisis pulmonalis, scarlet fever, etc., should have been mentioned in the Inter-State Quarantine Act. The insertion of these diseases would certainly have killed the Act, and in place of the all-powerful law which we now have to control the spread of yellow fever, small-pox, cholera or plague, we should, if this suggestion had been carried out, have had nothing whatever. It behooves, then, our sanitarians to have legislative wisdom, and not to lose all by grasping for too much at once.

The question now follows, what should the Government do in aid of public health more than it is now doing? This is a broad and deep question, and one which it would be an act of temerity to attempt to answer without the fullest consideration and deepest study. It may, however, be discussed without attempt at full answer being made; and as preliminary to answering this question we must make answer to others. At what do we aim? At what degree of public health should we aim? The standard can not be placed too high. The natural expectation of man should be to die of old age, and the ultimate aim of the sanitarian should be to eliminate disease. It is not enough to keep out or to suppress epidemic disease; we would wish to crush domestic diseases. Phthisis pulmonalis, diphtheria, scarlet fever, small-pox, and all diseases whose mode of transmission is by contact, should surely all go. A good and practical beginning might be made with pulmonary tuberculosis.

A lesson in the science of warfare against this disease may be well taken from our English cousins. Why is it that tuberculosis is rapidly disappearing from England, but is so rapidly increasing in the United States, where it causes between 15 and 20 per cent. of the total deaths? How is it in the other countries, especially those which contribute most largely to the immigrant population of the United States? The death-rate from tuberculosis in these countries is undiminished. Now, it should be borne in mind that England receives no immigrants. The natural cleanliness and intelligence of the English people has caused a most remarkable improvement in the health of the nation. London is one of the healthiest cities in the world. Its death-rate is much less than many of our small American cities. Said Benja-

min Ward Richardson recently: "The results have even by this time become so remarkable that, with another four similar decades of progress, we may look upon England as a new country of healthfulness and social purity." Are we, gentlemen of the Section, we, the Anglo-Saxon population of this country, less clean or intelligent than our English cousins? If not, then our death-rate should improve, unless we are subject to causes from which they are exempt. To one such cause we are subject, namely: the stream of immigration. Then, why not attempt to purify the stream? While driving out the dust of contagion from our own house let us permit only pure air, free from dust, to enter. Pulmonary tuberculosis should be added to the list of diseases quarantined against by the United States, at least among immigrants.

As bearing upon the subject of English cleanliness in its relation to the diminution of disease, the writer refers to a visit made by himself to the slums of London, in Whitechapel, in January, 1885. This neighborhood, besides being the resort of hawkers, pickpockets and thieves, is a tenement house district, and, notwithstanding the degraded condition of the inhabitants, the tenements—which are subject to regular police surveillance and inspection—were found to be invariably clean. They are greatly crowded; five small houses owned by one proprietor accommodated 600 men and women nightly, at a rate of 8 pence for a married couple, and 4 pence for men. One room was seen in which there were seventy sleepers crowded closely together. Notwithstanding this crowding, the tenements are kept clean, and a certificate to that effect, signed by the regular inspector of the district, is neatly framed and hung upon the wall. In two of the districts which were visited there were about 250 regular, common lodging-houses which accommodate, nightly, 7,800 tenants, and only about one dozen of infectious cases had appeared in the district within a year.

In further answer to the query, "What should the Government do in aid of public health?" one important fact is to be borne in mind—the necessity of absolute reliance upon ourselves. History furnishes no models for the construction of any sanitary institution adapted to the wants of this nation. Lycurgus, with his Spartan laws, adapted to a small and peculiar province, the laws of Solon, the laws of Moses, the quarantine laws of the fifteenth century, the sumptuary laws of Rome—none of these furnish a sanitary framework for the United States. What modern nation is perfect in its sanitary regulations? What nation has such conditions of boundary and magnitude as our own? What has England, with its Government on a "tight little isle," and its possessions scattered over the earth, what can a nation with such physical conditions teach us? What can

France, or Spain, each with a territory surpassed by a single one of the United States, teach us? Or Germany, with scarcely any seaboard at all? What conditions prevail in Russia, Italy, or Turkey, that prevail here?

We may adopt scientific appliances, we may study technique in foreign lands in establishing sanitary measures, but we must be a law entirely unto ourselves with regard to our sanitary policy. The United States is the *omnium gatherum* of the world. In the last ten years five and one-half millions of immigrants have come to our shores from all sections of the earth. We ourselves allow no pestilence to breed within our domain, but the cholera from Egypt or India, the plague from Russia, the yellow fever from the Spanish main, come as parasites of our great commerce and immigration. We send no diseases abroad, but by reason of our character as a haven, are constantly subject to disease from abroad. Our sanitary policy must be *sui generis*, must be formulated out of our own institutions, and must be influenced but little, either by ancient tenets, or by modern opinion of foreign countries whose circumstances are wholly different from our own.

A sanitary policy should be adopted far-reaching in its effects, adapted not for the present decade alone, but for decades to come. Its direct aim should be the ultimate intelligence and education of the average citizen in matters relating to his personal health, and the health of his Commonwealth. How this must be attained will be discussed presently, but in anticipation thereof it is necessary to state that a sanitary policy must be entirely in harmony with the spirit of the American Government, and no better plan for sanitary government appears at the present time than one modeled upon the structure of the general Government itself.

Broadly stated, this sanitary policy expects of each State a sanitary autonomy whose influence should be appreciated by every individual in every hamlet, however small, in its domain. It contemplates a State pride in the development of sanitation, a self-reliance and an unwillingness to surrender functions or call for aid from the general Government excepting after clearest convictions of propriety or necessity. This policy expects from the general Government that since it controls commerce, both maritime and inter-State, it will prevent commerce from conveying disease; that it will respect the sanitary institutions of the States; that it will have such organizations and establishments as properly belong to its sphere of action to supplement where States fail, and to enable it to wield its peculiar power when urgency demands. It was a want of harmony with the spirit of American Government that led to the failure of the National Board of Health. That was a sanitary empire—or sought to be—within the boundaries of a republic. It was un-Ameri-

can and it fell. In its very fall, however, it effected a good result. Immediately the sanitarians of the several States developed a marked State activity. Is there one who believes that if the National Board of Health had retained its powers, there would be the present advanced condition of State Boards of Health throughout the United States? It may be considered an axiom that the sanitary welfare of this country is dependent upon the development and perfection of the State Boards of Health. By means of State Boards only can the individual be reached. The reports which come from far off, perchance mountainous districts of out of the way counties, sent to the State Boards of Health, by them printed and transmitted to the world, furnish a stimulus to the community from which such reports emanate, as well as valuable information for sanitary officials.

The sanitarians and the Government must give mutual aid. To control commerce that commerce may not be clogged and lay the hand of healthful restraint upon her for her own good; to spread a net and hold it firm, to catch and throw back the vicious and diseased in the great wave of immigration as it breaks upon our shores; to check the merchant or manufacturer when his absorbing greed for gain makes him ready to risk the lives of hundreds; to oppose the lawyer when by a legal twist in behalf of the individual he seeks to force a way around the sanitary barrier erected for the common safety; to force the slow comprehension of legislators; to prick the conscience of the tardy doctor with the needle of the law, and even to sweep from the path the sentimental obstruction of mistaken priest and clergy—this is the mission of the sanitarian, the duty of the Government.

"SHE THOUGHT IT WAS HER CHANGE OF LIFE."

REPORTING CASES OF UTERINE POLYPI, UTERINE CANCER, INVERSION OF UTERUS AND SUB-PERITONEAL FIBROID.

Read by Title in the Section of Obstetrics and Gynecology, at the Forty-first Annual Meeting of the American Medical Association, at Nashville, Tenn., June, 1890.

BY A. VANDERVEER, M.D.,
OF ALBANY, N. Y.

The object of this paper is to concentrate upon certain cases that occur in our consultation practice, and in the practice of the overworked general practitioner, a closer and more positive examination for the purpose of a correct diagnosis. I will proceed at once to the report of a case that will help to illustrate what I have in mind.

Miss M., æt. 47, a well-to-do maiden lady residing in a small country town, had been in good health, regular in her menstruation up to the age of 44, when she began to flow more excessively at her menstrual periods, and soon thereafter developed a condition of both menorrhagia and metrorrhagia. After this condition had lasted

for a year, and when she was quite anæmic, somewhat exhausted and losing in flesh, she consulted her family physician, Dr. B., who treated her for some time with tonics, rest and diet, with some little benefit, and yet not much improvement as to the excessive flowing. He suggested making a careful examination as to her condition, but this she positively refused to have done, saying that "she believed it to be only her change of life." He treated her for another year, at the end of which time she was confined to her bed, and yet refused to have any local treatment. When she had suffered for nearly three years, and in a condition when there was much œdema of the extremities, her lips colorless and a profound state of anæmia present, at the earnest solicitation of the members of her family, she finally yielded, and the doctor was permitted to make an examination which confirmed his previous suspicions of a uterine fibroid. It presented in the form of a simple polypus projecting from the external os. Her condition was made known to her and an immediate operation urged. I was sent for on October 10, 1887, and found her in such an exceedingly feeble condition that I really feared she might die from the additional slight shock of the operation. She, however, was very willing to have done what seemed to be best, was now entirely passive, knowing that she could live only a short time if not helped in some way. I found a large polypus filling the cavity of the vagina, and attached by a moderately-sized pedicle to the internal os. Around it I was able to pass the chain of the écraseur, and to remove it without any great trouble, not giving the patient an anæsthetic, as I feared she would be unable to endure it. Cavity of the uterus was curetted thoroughly, washed out with a weak solution of bichloride and packed with iodoform gauze. This was removed at the end of forty-eight hours and afterwards vaginal douches made use of containing boracic acid in solution. This patient ultimately made a complete recovery, although her convalescence was somewhat slow in consequence of her exceedingly weak and exhausted condition.

I present this as a case familiar to many of us, illustrating a class of cases where procrastination on the part of the practitioner, absolute indifference and stubbornness on the part of the patient often costs the latter her life. Women seem to have in their mind the idea that they must expect all sorts of conditions to present at the time of the menopause, and are too negligent, too frequently, in having their cases properly looked into.

Belonging to another class of cases, which are far more sad, are the following:

Mrs. B., æt. 33, married, mother of three children, has always been in good health, family history good, youngest child 3 years of age, whom she nursed and weaned at the age of 14 months. Menstruated regularly after that until six months previ-

her admission into the Albany Hospital, September, 1886. During that time her flowing had continued almost constantly. She suffered little pain, but was much weakened, had emaciated somewhat, and continued attending to her household duties, refusing all local treatment. Her family physician finally told her that he would do nothing more to do with her case, and that she must go to the hospital, where she came under my care. On making an examination, I found an epithelioma that embraced the entire cervix, extending to the lateral walls of the vagina, to the under surface of the neck of the bladder, and extending up along the lower portion of the urethra. It was absolutely impossible to do anything for her in the way of treatment or operation, and when she was informed of her true condition the sadness of the scene is but too well known to many of us. This illustrates a class of cases by far too numerous as they present in hospital practice, and yet notwithstanding the time of life at which this patient complained, she too insisted that "she supposed it was her change of life, and that she would soon be all right."

Belonging to another class of cases are some such remarkable ones as I here report, where, having passed the menopause in a normal manner, the patient afterwards presents this condition of flowing and exhaustion, but still entertains the idea that it is simply a return of the menstrual flow, and which indicates another phase or condition of change, and which the following cases illustrate somewhat:

Mrs. Gory, æt. 65, married, native of Canada, mother of seven children, a strong and healthy woman all her life, passed her menopause without any unusual symptoms at the age of 49. At the end of three years, during which time she had been in good health, she began, as she supposed, her menstruation again. Did not pay very much attention to it at first, it came on at irregular intervals and continued so, at times flowing very severely. During March and April, 1889, she visited Chicago, when, flowing very severely, and being under the care of the physician of the family where she was stopping, after examination she was told by him that she had a uterine polypus, and that he would operate upon her by dilating the womb and removing it. She did not like to be operated upon away from home, was fearful of the effect of an anæsthetic, and returned to her family. Her flowing continued at intervals with more than usual severity, accompanied with very much pain at times. She described her pain as being of an expulsive character, not unlike that of childbearing, as she stated. The pain during July and August was unusually severe, and she realized that something was projecting from the vaginal orifice. About August 15, 1889, this became very prominent and somewhat offensive. She had been treated by her local physician, who

failed to make any diagnosis of the case. On August 23, Dr. Turner, of Crown Point, N. Y., was called to see her and was somewhat startled on entering the room, to notice the very marked odor of gangrene that presented. On examination he found a mass protruding from the vulva, the exact character of which he was unable to diagnose. I was telegraphed for, but did not see her until August 26, 1889. I then found the mass protruding as seen in the accompanying specimen. After a thorough and careful examination, I reached the conclusion that she had been suffering from uterine polypus, which had gradually extruded itself from the cavity, bringing down the fundus of the uterus, and causing inversion of the same. I could feel the lips of the external os well up in the vagina. Taking all things into consideration, her age, and the nasty gangrenous condition of the presenting mass, I concluded that it was not wise to dissect off the polypus, and reinvert or return the uterus, but to throw around that portion of the fundus that could be easily reached, the chain of the écraseur, and remove the mass in that manner. She bore the operation without taking an anæsthetic, the hæmorrhage was not at all severe, the parts were thoroughly douched with a bichloride solution and the cavity of the vagina packed with strips of iodoform gauze. These were removed at the end of the second day, and afterward the vaginal douche of boracic acid solution was continued daily. The specimen, as you will observe, contains the right horn of the uterus and Fallopian tube, the écraseur having reached well above the sloughing mass. She made a good recovery, and is now in excellent health.

The next is a case quite as remarkable in many respects.

Mrs. B., æt. 72, married, mother of three children, her husband a physician, but who had been in a very sad condition of nervous prostration for a period of ten or fifteen years. Mrs. B. had always enjoyed good health, but at the time of her menopause flowed very severely and irregularly. Supposed that she had ceased to flow at the age of 53, and was in fair health for a few years, but feeling some distress later on consulted the late Dr. Goldsmith, of Rutland, Vt., who told her that "she had a falling of the womb," and fitted her with a glass pessary which she wore without removing for fifteen years. She could then retain it no longer and suffered much for the following year. Later she consulted another physician and an attempt was made to have her wear, first a Babcock external supporter with stem pessary, and later a MacIntosh, all of which were somewhat useless. She suffered a right hemiplegia two years ago, when 70, from which she made a good recovery. Six months ago she noticed, as she supposed, an entire prolapse of the uterus which she could press back with much difficulty, and

which she continued to do until about two months ago, when she was unable to do it. It now remained out, she was confined to her bed, gradually growing worse, but her husband not in a condition of mind to recognize the serious state of her health. Her son, a very competent physician, she did not consult, although he saw her daily until about January 28, 1890, when, noticing her condition, the odor of the room, etc., he made careful inquiry of his sister, and then for the first time, learned of the serious condition she was in. He immediately sent for one of his neighboring physicians, who made an examination, but was unable to state positively what he believed to be the real trouble. February 1, 1890, the doctor called at my office desiring me to see his mother at once. I did so the following day, and found a sloughing fibroid protruding from the vulva, presenting the most offensive odor possible. The room had been kept thoroughly ventilated, but the odor was almost unbearable, and the patient seemed much distressed and in a very anxious condition of mind. She stated that she supposed for a long time that her flow had returned, and that she did not think there could be anything seriously wrong until the mass protruded from the vulva. The fibroid had its attachment to the anterior wall of the uterus, and very curiously rested between the cervix and posterior wall of the bladder. By passing the catheter into the latter viscus I obtained a very correct idea of the surroundings and concluded to remove it with the chain écraseur, which I did with little trouble. After removal the uterus returned kindly to its position. She made an uninterrupted recovery and is again able to care for her invalid husband.

The point that I wish to present is this, that these cases are to be found all over the country, and that in some way, and in some manner we should indicate to our patients the importance of their yielding to a more prompt examination, when such histories present as are here given. Our young women should be taught in our schools, academies and colleges more on the subject of menstruation. They should know more about their reproductive organs from chaste, moral and intelligent teachers. Mothers should know more of the functions of their own individual organs, and learn to teach their daughters.

Finally, the profession should exercise more care in impressing upon young wives and mothers the knowledge that in so many cases they so sadly need, and not assume the care of patients who are so unwilling to have the necessary examination made.

The Committee of the International Medical Congress to be held at Berlin has decided to give their guests a grand farewell banquet at an estimated cost of 15,000 marks (\$3,750).

CROUP.

Read in the Section of Diseases of Children at the Forty-first Annual Meeting of the American Medical Association, Nashville, Tenn., May 21, 1890.

BY C. R. EARLEY, M.D.,
OF RIDGWAY PA.

Dr. William Cullen calls this disease "Cynanche Trachealis."

"This name has been given to an inflammation of the glottis, larynx, or upper part of the trachea, whether it affect the membranes of these parts, or the muscles adjoining. It may arise first in these parts, and continue to subsist in them alone; or it may come to affect these parts, from the cynanche tonsillaris or maligna spreading into them. In either way it has been a rare occurrence, and few instances of it have been marked and recorded by physicians. It is to be known by a peculiar ringing sound of the voice, by difficult respiration, with a sense of straitening about the larynx, and by a pyrexia attending it."

We will now refer to the writings of Bartholomew Parr, M.D.¹

"ANGINA TRACHEALIS."

"In compliance with Dr. Johnson and consonantly with our observations in a former article, we mention this species as a separate one, and distinct from that sometimes comprehended under this title by other authors.

"The croup we shall consider under the appellation of angina stridula, and confine the present term to the malignant angina, extending to the trachea, or to that species of the disease in which the larynx and trachea are originally attacked. To this complaint authors have not, perhaps, paid due attention; it is indeed seldom an original disease; yet within our observation, it has appeared to be so. It is truly an erysipelatous inflammation in contradistinction to the phlegmonic; nor does it materially differ in its treatment from putrid pneumonia, or angina maligna. We need not in such instances dread the power of the bark in inducing dyspnoea, but employ it freely with cordials. The only question is whether blisters are more admissible or more effectual? From our own experience we cannot encourage their application; but they certainly do no harm."

"ANGINA STRIDULA."

"This is the cynanche trachealis of Cullen; a disease that, for its singularity and fatality, has fixed the attention of pathologists and practitioners. We wish we could solve the difficulties, or direct a more scientific or successful method of cure than has hitherto been adopted.

"The angina stridula, is also called angina membranacea, interna, perniciosa, polyposa, catarrhus suffocativus and morbus strangulatorius. It is chiefly a disease of children, and is distinguished by a difficult inspiration sounding as through a brass tube, harsh cough, with seldom any tumor in the throat, and no difficulty in swallowing. This definition differs from that of Dr. Cullen who is a little warped, by his adherence to system.

"A cold and a short cough precedes for some days, when the harsh breathing comes on, with little or no fever; sometimes suddenly, at others more gradually, increasing by degrees, till suffocation closes the scene.

"The disease consists of a membranous substance lining not only the trachea above its divarication, but also its minutest branches, though the large parts of the tube are first affected. It has been considered as a spasmodic disease by some, as it attacks suddenly, and is relieved by warm baths and asafoetida, and as inflammatory by

¹ Parr's Medical Dictionary, A. D. 1803. Vol. I, pp. 119-120.

others, who rest with equal security, on the cough preceding, and the utility of bleeding."

The "Edinburgh Practice of Physic," Vol. I, pp. 352 to 381, twenty-nine full pages, discusses the subject of croup, and gives full reference to, and quotes freely from authors as to theory and treatment of this disease, before the publication of that "Practice." In the treatment recommended by the "Edinburgh Practice," the use of bark is strongly recommended.

John Eberle, M. D., ("Practice," Vol. I, pp. 323 to 336, Fourth Edition, A. D., 1838), discusses the subject very freely under the names of cynanche trachealis, croup and hives. The latter name for croup, was used by the people in the country. It was often called bold hives. His treatment was bleeding freely and followed by emetics, calomel, and the warm baths. He gives us thirteen pages of his theory. John Mackintosh, M.D., ("Practice of Physic," First American from Third London Edition, A. D., 1834, Vol. I, pp. 277 to 285), gives the usual history of croup of those days. In his reference to the appearance on dissection, he says:

"On opening the trachea, false membrane is found lining the organ in various states; sometimes it is soft and diffuent; sometimes partial; at others extending beyond the bifurcation. Sometimes it is found of very considerable thickness and firmness, of a tubular form, corresponding exactly with the canal which it covers, and extending an inch or two into the branches; on some occasions, the first divisions of the tubes are as completely lined as the trachea. Frequently the larynx is similarly affected."

We also give an extract of what he says as to treatment:

"This is a disease of all others which requires promptness of decision, and activity in practice; for if false membrane be allowed to form, not above one case in the hundred will be saved. The worst cases are those in which a sore throat has been neglected, and the inflammation has spread into the windpipe; or those in which patients have labored under bronchitic symptoms for a week, or perhaps more, before the disease has affected the trachea and larynx, under which circumstances, a recovery is rather to be considered as an escape, than as an event to be expected."

We have thus quoted some extracts from the writings of Dr. William Cullen under the name of cynanche trachealis, and Bartholomew Parr, M.D., who refers to Cullen, and uses the name angina trachealis, but considers the croup under the appellation of angina stridula, etc. Also from the "Edinburgh Practice of Physic" Dr. John Eberle ("Practice"), and from John Mackintosh, M.D., ("Practice of Physic"), and all these authors describe to us in their writings on croup, the disease we call diphtheria in some of its forms.

Morell Mackenzie, M.D., of London, in his very valuable works on the throat, nose, pharynx, larynx, trachea, œsophagus, nasal cavities and neck, fully describes croup under all its names, and gives a full history of it, and proves it be-

yond a doubt, to be one form of diphtheria. He quotes many of the most prominent authorities to prove his position.

We find proof of the identity of croup and diphtheria in the practice and writings of such authorities, as Dr. Mackenzie, whose opinion is respected and quoted as authority, in all parts of the world; also, Drs. Hillis, Semple, and Virchow, who only yielded to the principle advanced that diphtheria and croup were identical, after a long and thorough investigation.

Dr. George Jackson (*British Medical Journal*, Feb. 19, 1870), pronounced diphtheria and croup identical. Sir William Jenner, (*Lancet*, Jan. 2, and 16, 1875), gave his adhesion to this doctrine. The renowned Dr. Traube, of Germany, also had accepted the unity theory.

We might quote authorities filling pages to prove the identity; but it is a question that each practitioner can settle in his own mind. My experience in an extensive practice since the fall of 1846, has proved beyond a doubt in my mind, that croup is only a form of diphtheria. My treatment of the disease in its first stages, was an emetic of ipecac which has always proved perfectly safe and sure, and when attended with a high fever I have used freely a solution of ipecac, chlorate of Potassa, and the chloride of sodium, in small and repeated doses, together with warm baths and friction of the entire body and limbs, in the febrile stage, and as soon as the surface becomes moist, change the friction and baths to rubbing and-bathing with bay rum or alcohol and water, equal parts, used two or three times a day, and the use of quinine in large and repeated doses.

The first time I used quinine in croup, was in Sept. 19, 1846. I was called in great haste to see a little girl, 1 year and 9 months old, whom the friends thought dying. They had used Cox's hive syrup, and all the medicines usually kept in the house in those days, to meet cases of croup. On my arrival I found nearly all the ladies of the then small town, much excited, as they thought the child dying, and were shaking and fanning her, as she was struggling for breath. I at once gave a very large dose of quinine, and with great effort the child swallowed it, and soon began to breathe easily. I repeated the quinine from every one half to one hour in smaller doses. The warm wheat bran bath they were using, was kept up for a time, and the child bathed with alcohol and water afterwards, and with the free use of a solution of ipecac and chloride of sodium, the patient was soon well.

This was my first use of quinine, and I had never seen it recommended for croup. I at once reported the case to my friend Dr. Frank H. Hamilton, then at Buffalo, N. Y., formerly at Geneva, N. Y. Since that time I have used quinine in the treatment of croup and always

found it satisfactory, if given in doses as required.

I sometimes use a brush or sponge for applying the solutions to the larynx and trachea, something after the plan of those recommended by Dr. Mackenzie. I used these brushes first in 1846, by making the handle in the same form from a whalebone, by bending the end of the bone, and piercing it with holes, then securely sewing through them, a very fine sponge or linen lint on and around the end for the brush, and trimming carefully before using.

My first treatment of diphtheria, was on Nov. 1, 1860, and I gave the treatment as directed by the medical journals of that day, and my patient died. I then adopted the same treatment I had used for croup in 1846, only being governed by the different stages of the case and the constitutions I had to treat. In the inflammatory or stage of high fever, I use ipecac, chlorate of potash, chloride of sodium, bicarb. of soda and gum acacia, and free bathing with strong saline baths. I use quinine, iron, and carb. ammonia in solution, also whisky, brandy or wine, and stimulants generally, taking good care of the stomach and bowels at the same time using creta præp. freely in case of diarrhoea, being very cautious as to the use of cathartics. I never give calomel or any medicine that will in any way weaken or prostrate, but always support and build up the entire system.

Out of 489 cases of diphtheria I treated from November 1, 1860, until February 15, 1861, as reported by me in the *Cincinnati Medical and Surgical News*, Vol. II, No. 4, page 104, only five died and 484 recovered. That same course I have since adopted and with the same results.

I will here quote an article from the May number of the *Medical World*, Vol. VIII, No. 5, page 181:

"'Croup' is not confined to the air-passages alone. A form of croup attacks the urethra sometimes, and is indicated by the excretion of characteristic white membranous structures, mixed with more or less blood and pus. Croup of the bladder is more frequent in females, the membranous substance being reddish in color, and in much larger pieces."

This statement is correct as to cases of diphtheria. The membrane may be found covering any part of the mucous membrane, mouth, nose, fauces, trachea, bronchia, stomach, bowels, kidney, urethra, rectum and vagina. I have at this time a small box of the membrane taken from the vagina. I also have had cases where wounds on any part of the body where the cuticle was removed were covered with this fungi. I call these cases diphtheria and not croup. All of which is respectfully submitted.

HOSPITAL BURNED.—The Mercy Hospital at Davenport, Ia., was partially burned on June 11. One of the Sisters perished in the flames.

OPERATIONS FOR THE RADICAL CURE OF HERNIA IN EARLY INFANCY AND CHILDHOOD.

Read in the Section of Surgery and Anatomy at the Forty-first Annual Meeting of the American Medical Association at Nashville, Tenn., May 20, 1890.

BY THOMAS H. MANLEY, A.M., M.D.,
VISITING SURGEON TO HARLEM HOSPITAL, NEW YORK.

My object in submitting this article to the Section of Surgery is with a view, mostly, of presenting a few notes on a small number of cases in which, during the past four months, I performed operations for the cure of hernia, besides to offer a few comments on such cases as come within the scope of such operation.

I am particularly desirous of obtaining the views of several surgeons as to the desirability of doing a celotomy in early life, and their opinions as to the temporary or permanent character of such a cure as is wrought by modern surgical methods.

My cases are seven in number, all boys, the oldest seven years and the youngest three weeks; no history of heredity or injury in any of them. In every instance the protrusion was discovered shortly after birth. In none of them could a truss be worn with comfort, and in two no sort of contrivance would retain the hernia in its proper cavity. I had no deaths or dangerous complications after operation, and in all except one case the incision healed promptly and completely within fifteen days after the cutting was done.

Case 1.—P. B., aged 7 years, was first brought to me when 1 year old, with a large protrusion on the left side. From the mixed nature of the anatomical derangement and pathological condition I was unable to decide what the mass consisted of, as it in many respects was like a hydrocele of the cord, a scrotocele, or a new growth. I was not quite sure that it could be wholly reduced. On general principles, however, I recommended a truss. I saw nothing more of him again for four years. His father informed me that he secured a truss as I directed, but it gave the lad so much pain that it had to be laid aside, when he consulted others, who were undecided as to what the little fellow was suffering from. However, with nearly uniform accord they advised that a truss be worn. Another truss was applied, but in spite of it the hernia would slip down. However, as it was supposed it would prevent matters from getting worse, he was obliged to constantly wear it. I now advised an operation, but the father would not consent to it until two years later. I saw the boy again in December, 1889, when the protrusion had attained more than twice its former volume, and swung like an immense pouch down the inner side of his trousers, to such an extent that his mother could not devise any sort of garment which would effectually conceal this repulsive deformity; and

hence the boy had to endure the jeers and ridicule of his young associates. On careful examination the testis on the affected side was found reduced to more than half its size, and the protruded mass stubbornly resisted taxis. It was clearly evident now that the truss, by its constant pressure, had greatly reduced the nutrition of the generative gland, and, besides, had by its chafing, irritating pressure produced extensive adhesions.

I operated on him December 7 at the Harlem Hospital. On opening down over the enlargement it was at once seen to be a hernia of the congenital variety, there being no sac, the intestine and atrophied testis lying firmly bound together within the fascia propria. All the serous surfaces were found more or less adherent, and considerable peeling off and tearing had to be done before the gut could be liberated and returned and the testicle isolated. I now removed the testis, separating it from the spermatic cord high up. The tunica vaginalis was detached from its adjacent tissues, and it, with the funicular process of the peritoneum employed as a sac, was ligated off close to the abdominal aperture. The rent in the tissues was treated by the open method of McBurney.

He made a rapid and uneventful recovery. Except for a painful dermatitis excited by the bichloride gauze, there was nothing to mar his convalescence. He left the hospital in four weeks, and at the end of six weeks from the time of operation he took the upright position. Everything went well for two months, when it became evident that the hernia was threatening to return. A mass the size of a small marble was seen near the upper margin of the scar. A truss was immediately applied and worn since. Though there has been no recurrence of the rupture to any extent whatever since the truss was worn, I have, as a precautionary measure, advised that it be constantly retained while he is about in the day-time.

Case 2.—T. H. This baby was 10 weeks old when he came under my observation. The mother stated that for two weeks or more she had observed, when giving him his morning bath, that on the right side she would at one time see a large swelling in the region of the groin, and at another the testicle alone could be felt. Again, what puzzled her the most was that no trace of the testis, or anything whatever, was visible on another occasion. She brought the infant to me to have this state of things remedied. On examination no testis was found in the right pouch of the scrotum, but by searching for the outer ring the gland was felt just within and above the inguinal opening. Now, by making moderate traction under ether the testis could be brought down well into the scrotum, but it was evident that something else was coming close after it.

In opening up the parts, that small conical lamina of fibrous tissue designated the governor, or gubernaculum, was seen to be absent; but anatomically the arrangement was very similar to the first, except, instead of the testis being adherent to the intestine, the tubular structure of it, the epididymis, was firmly glued to a fringe of omentum. The latter was dissected away, when the testis was fixed in position by a fine suture penetrating the tunica albuginea and its opposing serous membrane. We then, commencing with the innermost layer of the coverings, closed them in *seriatim* from below upward, until the ring was reached. Here I turned in the divided omentum and sewed it into the pillars on either side with the kangaroo suture. With the exception of some trifling uneasiness for a few days, the operation was followed by no serious constitutional disturbance, and in ten days' time the wound was well solidified.

Case 3.—Dr. Ira B. Reed, of New York, requested me to operate for him on a baby three weeks old. The rupture was discovered three days after birth. It was on the right side. The testis was normal in every respect. The hernia came well down into the scrotum, and as no sort of bandage or truss arrangement could be worn, the doctor requested my advice and assistance. I recommended immediate operation. This hernia, though very large, was of the same identical anatomical structure as the other two, except that there were no adhesions.

I was content, in this instance, to open up the invaginated and enormously distended funicular process sufficiently at its base for inspection, and then closed the whole up to the ring—all the redundant tubular structure—with the cobbler's stitch. I saw that something must be done at the inguinal portal to close in and permanently obliterate it. In this situation I used small, strong silk, passing my suture first through the integument on the inner side, the connective and other tissues, then through the inner pillars of the ring, through the dilated fascia propria, over the spermatic cord to the opposite margin of the ring. Five of such sutures were employed and tied tightly, one end of the suture cut off and the other left in the wound. The portion of the cleft through the soft parts immediately over the ring were treated by fine packing from the bottom, as in the operation of McBurney.

This case has progressed satisfactorily. In three weeks' time the parts were solidly sealed, and now, more than three months since the wound closed, there has been no symptom of relapse.

Case 4.—M. O. T., 8 years old. Child sent to me by Dr. James Heally. The youngster had hernia noticeably when two weeks old, on right side. Large inguinal variety, and could not be retained with a truss without great discomfort.

With this case the hernia was a nearer approach to the adult type. Though not large, it had an independent sac. The testis was normal in every respect. The spermatic cord was most intimately bound down and thoroughly incorporated with the sac, requiring a most tedious and delicate dissection to isolate it. The sac contained intestine, which was pressed upward when it was ligated off and divided, that part presenting externally cut away, and the case treated essentially as the preceding.

Case 5.—W. R. This child was 4 years old, with no evidence of hernia till he was 2 years of age. Hernia in the left side. Owing to the long and severe pressure of a string truss the skin over the line of the inguinal ring was calloused and chafed, but no truss could be tolerated at all which would keep the parts up; and hence, rather than compel him to submit to the torture of a truss, the parents discarded them all and let him go about with his hernia swung in a home-made cotton bag. However, it was so rapidly attaining very broad proportions that he was sent to me for operation. The steps in the operative procedure varied but little from the others, except that I well refreshed the margins of the rings before I applied the silk sutures. Prior to the operation he suffered from nocturnal incontinence, but at once the rupture was cured the night-wetings immediately ceased. His recovery from the operation was rapid and complete, and now out of the hospital on his limbs again nearly two months, there is not the slightest evidence of relapse, and the mother tells me that whereas heretofore he was practically invalided through his deformity, now he no longer stands aside, but shares in all the games of boyhood.

Case 6.—E. M., an infant aged 8 months, operated on March 6. Mother said that when 4 months old she noticed, for the first time, that a testis was wanting, and brought him to a physician, who encouraged her to wait, as he said the missing organ would in time come down. She waited for a month, when she found a large swelling in the groin, which would vary in size and position, some days being well down, and on others higher up. She applied a truss, on the advice of a neighbor, but it worried the little fellow so much that it was removed altogether.

When we opened the flask-shaped enlargement no testis was found, but on going in the direction of the abdominal aperture a small testis adherent to the loose cellular tissue, just within the outer inguinal aperture, was found. After opening the fascia propria—for the intestinal protrusion had no visceral covering of peritoneum,—the gut was crowded inwards, and the prolapsed transversalis fascia, the sac, ligated off close to the free peritoneal border and divided. Under moderate traction and tearing the spermatic cord yielded sufficiently to allow me to bring the testicle well

down into the scrotum and secure it against the possibility of future retraction. The hernial wound was closed throughout, the parts brought together and sewed separately. The ring closed securely over the cord with strong aseptic silk.

Case 7.—H. B., operated on April 16, 1890. The baby was 3 years old. On admission to Harlem Hospital little of the surgical history of his case could be obtained, as he was an illegitimate offspring and was being brought up by an aunt. Of one fact there was no doubt, viz.: that the boy had a decided fulness along the line of the spermatic cord, which no truss would remove. There was some difference of opinion as to what the real pathological state was, one maintaining that it was a spermatocoele, and another that it was a hernia. The position of the testis was normal. The mass was conical in shape, with its base the reverse of ordinary ruptures. Its apex was at the epididymis, and its broadest part on a line with the ring. In straining or coughing it visibly expanded along its superior outline, and on taxis it was definitely ascertained that a portion of the abdominal contents passed through the canal. In dissecting immediately above the testicle and opening the tunica vaginalis a pure serous liquid escaped. By further inspection upward a small knuckle of intestine was felt and returned, which was probably prevented from descending further by its ligament. In this, as in the congenital varieties before noted, I closed in the distended spermatic sheath by the quilted suture of kangaroo tendon, except at the ring, where strength and moderate permanence were demanded.

This, as all the others, did well in every respect, and was dismissed from the hospital in three weeks, perfectly cured, with no trace of his former impediment remaining.

These seven cases comprise my experience in treating defects of this description in very early age by operative methods.

I am very well aware that the number is too small, and the time too short since operation, to draw any definite inferences or make practical deductions. However, the cases are not so few but they afford very many features of deep interest to the studious anatomist and progressive surgeon.

It is needless, in presenting a subject of this description before a body of well-trained surgeons, to consider the complex and varied anatomical arrangements found in each case, even if time permitted, though it is indispensable that this be thoroughly mastered before even the most rudimentary comprehension of the defect is possible.

The cases narrated are, I think, interesting when we remember that they were all in the male sex, and, with two exceptions, were associated with maldescent of the testis; when we see how

slight and transient the constitutional disturbances were after operation, and how rapid and complete was the healing of the incision.

It may be argued that measures less radical might have been tried before resorting to operative procedures; but with four, support was tried and found impracticable. Besides, it seems to me that when the surgeon can offer nothing but a truss to those unfortunates, it is a most humiliating confession of the limitation of the art which he practices. If the truss were properly constructed and applied and did its legitimate part, it would be a most welcome adjuvant; but the poor cannot afford expensive supports, and the cheaper article is worse than none at all.

With a man in possession of natural reason and judgment a truss may be worn with moderate comfort; but with the restive, growing child, unable to make known his wants, it may be an instrument of unbearable torture.

Herniæ will disappear, after a truss is worn a while, in young children. Yes; but according to the testimony of Astley Cooper, Malgaigne, Bryant, and others, it will almost invariably return when adult life is reached. In very many cases the truss is a prolific cause of varicocele of the cord and atrophy of the testis, by its pressure on the spermatic vessels, hence leading to impotence and diminished virility.

With those cases in which the generative organ lingers in its path downward, or has been drawn up more or less later, and by its incessant pressure, it excites inflammation of an adhesive kind, gluing the organ so rigidly to adjacent parts as, in the first place, to prevent a possibility of its descent towards its natural location, and, in the second, causing a sort of soldering together of testis, gut and sac in such a manner as to prevent a reduction of the rupture ever becoming possible, the patient being doomed to carry an enormous pendulous bag of his digestive apparatus between his legs for the remainder of his life.

The loss of blood is very badly borne by infants. With this operation, properly performed, there is none lost. With rigid antiseptics the peritoneum is safe from inflammation.

Every hernia, whether occurring early or late in life, is undoubtedly attributable to defective development at birth, and we all know that every species of malformation, whether of the osseous structure or the soft parts, is most successfully and easily dealt with at a very early age, no matter whether it be club-foot, cleft-lip, or anything else. With hernia it is a specially desirable period, as then the patient is in a constantly recumbent position for months, thereby giving the parts time to solidify, while the growth of the body, the rising of the trunk and the lateral expansion of the pelvis will tend to so alter the planes and curves of the inguinal region of the original vent that a later protrusion is scarcely a possibility.

The operation adds nothing to, nor does it take away. It is undertaken, not to restore what never existed, but to simply aid nature to perfect a process never completed.

It has been alleged that hernial operations entail the destruction of normal tissues. I deny it, unless we concede that every operation which involves the incision of the integument is destructive. Division and destruction of a part must not be confounded.

At a meeting, on April 8, of the Royal Society of Medicine and Surgery in London, Mr. A. E. Barker communicated the statistics of fifty consecutive operations for the radical cure of hernia without a death or a single complication unfavorable to the vitality of the testicle. The patients ranged from 3 months to 70 years old.

Parker, at the same meeting, stated that he had operated lately, as a rule, every time he discovered a hernia in infants, with most gratifying results. Mr. House reported twenty-five operations on patients under 12 years by divers methods, with cures in all except one, and no return of the rupture.

At the late congress of German surgeons, held in Berlin, April 12, 1890, Lauenstein, of Hamburg, presented the report of fourteen herniotomies performed in 1888, with but two relapses. McEwen was cited as having operated in eleven years, from 1879 to 1890, ninety-eight times, among whom were many children. He had no deaths, except one child, who was carried away by scarlet fever.

At the monthly meeting of the Société de Chirurgie in Paris, April 9, 1890, an animated discussion was held, at which Messrs. Richelot, Tuffier, Chappionniere, Marchand and Reclus separately and severally contributed reports of many cases on which they operated with success for ectopic testis, associated with hernia, in very young children. These quotations are from the proceedings of the medical societies of the three most progressive nations in the world, and the almost unanimous accord with which was received the reports of modern operations for the cure of hernia in early life by radical operation, is most gratifying and encouraging.

The tissues in early youth heal with marvellous rapidity, and hence the time occupied to seal the opening is only a matter of a few days. Certainly, if the little one inherit syphilis, scrofula, or other blood dyscrasias, the process of recuperation will be much retarded. It is not necessary that the baby be kept in hospital after operation. With ample fluffy dressings they will need changing only every few days; and though they will be quickly soaked with urine, I have found this to in no way interfere with rapid union.

In every case here detailed I found phymosis associated with the ventral protrusion. This adhesion of the glans with the prepuce in early life

I believe to be always physiological; but inasmuch as there has been some conflict of opinion with regard to this constituting a factor and as a contributory agency in producing hernia, I have in every child forcibly retracted the loose integuments and directed the parents to lubricate the glans and manipulate the parts until a liability to its relapse in the future is removed.

The real, enduring value of celotomy for radical cure must, to a certain extent, be estimated by the number of relapses, and whether, in such event, the protrusion may be more manageable by retentive apparatuses.

Among the avowed and uncompromising foes of every species of treatment which contemplates the incision into, or laceration of parts, it has been their charge that inasmuch as no operative procedure has yet been devised which will always ensure against relapses, none are justifiable. Superficially considered, this objection appears rational and logical, but on thoughtful examination and searching analysis its deception and its delusive character become only too apparent; for if its philosophy were sound and its premises impregnable, then, indeed, there would be little need of surgeons outside the domain of traumatism, as in every variety of pathological lesions it is a rule, with few exceptions, that they return almost invariably sooner or later, the surgeon's manual efforts being directed towards alleviating a local condition without in the slightest manner making an impression on the constitution or central organs. Must we condemn the surgical management of strictures, of calculous disease, of tumors, benign and malignant, of aneurisms, of neuralgias, of stenosis of the digestive tract, of the various bone lesions, and many other afflictions too numerous to mention, simply because we can make no guarantees against relapses?

Hernia will occasionally return, no matter what operation is performed; but there are very many that will not, and even if we can cure only a moderate proportion a very great gain has been made. Further, it must not be forgotten that operations devised for their cure by radical methods on an extensive scale are very modern, dating only from the general adoption of antiseptics.

Though many of the objections directed against operations undertaken for the cure of hernia carry with them much force, yet, when applied to infancy and early childhood they will scarcely hold. In the matured adult the parts have assumed a more permanent and durable position. The elongated mesenteric ligament has undergone marked changes in its histological elements. It has become greatly hypertrophied and indurated. The canal has lost its obliquity and become greatly expanded. The sac has acquired adhesions with very delicate and important structures; and like woman, with her thoracic brace—the corset—their use, by habit and by its evil effects on

her dorsal muscles, in time becomes a necessity, so with the truss; its wearer must feel a sense of insecurity after its removal, for a considerable period of time.

With the infant and child, on the contrary, its skeleton and structures are yet undergoing the evolution of development, and if faulty or defective, the time to remedy them safely, rapidly and permanently is while the parts are in their formative stages. This, I believe, has been demonstrated amply in other congenital lesions than in those seen in hernia.

In those cases in which a return of the mass is impossible and its steady increase a certainty; in those in which the funicular sheath of the spermatic cord is greatly distended, and the testis, with the intestine, are fused together, the only real, simple and sovereign remedy is operation.

A faulty descent of the testis—ectopic testis—is the foundation of all herniæ, I am confident. The testis, in its passage downward, forms attachments with the varied duplications of the peritoneum, which in time will surely lead to a weakness in the inguinal walls. As a consequence we seldom have a rupture without the testis or its adnexa sharing in the deformity, and the operation which removes the hernia contributes towards the full functional integrity of it.

I have not advised this operation in early life in those cases in which a truss can be comfortably worn. I am inclined to this custom for the present, until time will have tested the value of those operations which I have already performed. Many disappear under the truss in youth. Those cases treated in this manner which do not disappear, however, are sure to attain greater size with advancing years, liable at any moment to strangulation, soon acquiring such a volume that a truss is wholly useless, and leaving the patient an object of compassion and misery.

In conclusion it may be well to enumerate the varied stages of the radical operation, its technique, and the subsequent deportment of the patient after the parts are well united.

Inasmuch as but a very limited area of the soft parts is intruded upon, there is no shock following the operation. The fear always in mind with the elder surgeons, of the extension, upward, to the general peritoneum of inflammatory action, is efficiently eliminated by vigorous asepsis or antisepsis. I make an incision in the direction of the spermatic cord, beginning immediately over the central axis of the ring. I say ring, for there is no inguinal canal proper till the body has attained adult development. I now carefully divide the different tunics until the cord is reached, when, if I find an expanded, unclosed fascia propria, I press upward the gaping and descending viscera, gradually gathering in the loose margins of the spermatic fascia until the common line of the peritoneum is reached, when

I close in and approximate the divided serous surfaces with the buried suture of kangaroo tendon, as recommended by Dr. H. O. Marcy, of Boston. When I find very much separation of the pillars of the ring and considerable laxity about its aperture, I use silk; also in cases in which there is an independent sac composed of the fascia propria abdominalis, and where I need something which I can depend on for endurance and strength. Every sort of absorbable material is almost wholly useless when it is put on a strain, and especially in this situation. In dealing with the free ends of the suture after knotting I divide one and leave the other in the seam of the wound, for the purpose of temporary vent for drainage, and, besides, so that I may use it to withdraw the knot when the parts have solidly closed, when absorption and disintegration have liberated it, and I do not wish to take the chances of having a troublesome fistula to close later.

A troublesome experience has taught me to avoid the use of bichloride gauze on young children, as I have seen some of the most painful forms of dermatitis follow its use on their integuments; so that now we render our gauze simply aseptic by cleansing, with baking or boiling before using. I always insist that some sort of a compress be worn for at least six months after the operation, immediately over the cicatrix. For the remainder of the patient's life, after the upright attitude is assumed, I strenuously insist on the patient wearing a good, broad, strong belt which will pass around the girth below the cristæ ilia, so as to shift the weight of the intestine swung by the mesentery from the spine to the pelvis.

Owing to the marked obliquity of the pelvis, the whole abdominal mass is thrown mainly on the lateral and anterior walls of the abdomen. Now, if this strain can be distributed by transferring it to the long base of the belly, a very substantial gain will have been made.

If, as with women, in whom we see so little hernia, the superincumbent weight of men's garments was borne more by the hips and less by the spine, the aponeurotic parts would not be so apt to give way. I have found, too, that hernia is altogether a much less frequent disease with the belt-wearing peasantry of certain nations in Europe, than among those who suspend everything from the shoulders. With many young children the mother will so adjust the child's waistbands that nothing further will be needed; but as he approaches adolescence and is required to commence active labor for a living, or to practice athletic exercises, then he must wear a substantial belt.

To finally epitomize my reasons for insisting upon the early operation for the radical cure of hernia, they are simply these: (a) No danger whatever attends the operation properly performed

on the healthy child. (b) As the infant remains in the recumbent posture till nearly a year old, ample time is permitted for thorough union before a strain is put on the parts. (c) At no period of life is time of so little value to the patient. (d) In those cases in which the mass can not be returned owing to adhesions, the operation, if for no other purpose than placing the parts in a condition by which a repulsive deformity may be forever obviated, is always imperative, and no delay should be tolerated. (e) No special operation can be recommended indiscriminately, as no two herniæ are precisely alike; and hence the technique must be in every case adapted to the condition found. (f) A belt of some kind should be always worn after operation during the remainder of life.

WHAT IS THE PRESENT MEDICO-LEGAL STATUS OF THE ABDOMINAL SURGEON?

Read by Invitation in the Section of Medical Jurisprudence, at the Forty-first Annual Meeting of the American Medical Association, at Nashville, Tenn., May, 1890.

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CHAIRMAN SECTION OF OBSTETRICS AND DISEASES OF WOMEN, 1890.

The line of thought outlined in this paper, no matter how expressed, is intended to be suggestive rather than dogmatic—inquiring rather than assertive—as indicated by its title. The recent rapid advancement of the surgery of the abdomen has inevitably led to its separation from the general surgical field into a distinct specialty. It finds itself in a new environment, without traditions or statutes for its guidance, and hence with only a comparatively recent experience on which to found its legal or surgical status. For these and other reasons we may not speak in this place except suggestively or inquiringly.

That abdominal surgery now holds a place distinct and apart from other branches of the surgical art, need scarcely be argued here. That it must of necessity be considered a specialty appears reasonable, when we contemplate the nature of the organs dealt with, and the variety in the character of the operations upon these organs. The great point to be insisted upon is, that the lines that separate it from the other divisions of surgery are so well marked, that no matter how well a man may be equipped in these, unless he has had abdominal experience he has no right to enter its domain except under urgent necessity, where delay will lose life or endanger it less than the inexperience which proposes to operate. It is surprising that men without such experience, either practical or theoretical, will insist on attempting the work of reformed abdominal surgery, than which there can be nothing more delicately defined or exacting in all its details.

The inexperienced surgeon will hardly risk tenotomy for a deformed limb, or trephining for focal epilepsy; yet the most illiterate or inexperienced practitioner, but lately become a doctor, considers it his right to rush headlong into an abdomen with his bistoury, maul its contents with his soiled hands, bury the remains with a deceptive death certificate, and complete the farce, which is also a tragedy, by an after-pose before the community as a man who has accomplished something remarkable. This is the kind of work that has carried discredit into the domain of what is perhaps the most delicate branch of all surgery, needing for its success or justification a discriminate knowledge and experience not equalled in any set of surgical procedures.

THE PROPRIETY AND NECESSITY OF THE OPERATION MUST BE EXPLAINED.

The removal or interference with organs that have to do with the perpetuation of human life is in itself a serious business, while the responsibility of conservative procedures that shall in some cases preserve these where they would otherwise be lost, must be looked upon as entailing great responsibility, and as requiring a nice degree of discrimination not to be attained except through ample experience, special training, and much study.

Now, while the generative organs only are fundamentally dealt with in gynecology, the work of the abdominal surgeon has a far wider range. Abdominal surgery must deal with all or most of the organs having to do with the nutritive functions of the body—intestines, liver, kidneys, stomach, spleen, and pancreas. While interference or complications with some of these are more or less rare, still they enter into an estimation of the question as possible factors, and are not to be lost sight of in formulating the claims of this branch of surgery to a specialty. In dealing with these several organs for traumatic or pathologically diseased conditions it must always be remembered that they are hidden from the eye of the patient, their functions not generally understood by the laity, and the necessity of interfering with this or that diseased condition not properly understood. Herein arises the urgent reason for a more or less careful explanation of the propriety or necessity of an operation. This will in many cases eliminate the after possibility of recrimination on the part of the patient, and save the surgeon a deal of trouble and the opprobrium of misrepresentation. In doubtful cases, professional evidence of the surgeon's advice and opinion is to be urgently counseled.

Closely allied to the foregoing is the question of the consent of a patient or friends to an operation. A patient has an undoubted right to refuse operative treatment, however urgent or imperative the need. A patient's consent to the

removal of the second ovary, or any after conclusion that the surgeon may deem wise in the interest of the patient, that might arise during the steps of the operation and must then be acted upon, had better be obtained beforehand. A woman's ovaries or uterus are no more to be removed without the consent of her husband or her own approval, speaking generally, than that same husband should be castrated without his own consent. Moreover, since the friends of a patient are more likely to cavil than even the patient, it were well to explain all to them likewise.

THE PREPARATION OF THE PATIENT. THE OPERATION. THE AFTER-TREATMENT.

Having dealt with the necessity of operation and its explanation from a medico-legal standpoint, the next to be considered in the order of sequence is the special preparation of the patient. It is admitted generally by abdominal surgeons that in order to insure success in abdominal work, a special preparation of the patient is necessary; this is, at least, so in all its essentials. An ignorance of the particulars of this preparation, no matter what the operator's skill in other respects, should bar him the right of attempting any abdominal operation. These details need not be entered into here; it is enough to merely refer to the important bearing they have in the equipment of the abdominal surgeon.

Having prepared the patient the next step is the operation itself. The anæsthetic is to be administered by an experienced and trustworthy anæsthetizer. Once into the abdomen the work is to be done speedily and carefully, having in view always the best interests of the patient, not the glorification of the operator—not to operate merely for the sake of doing something nor to unnecessarily prolong the narcosis. It may sometimes be, nay often is, necessary to carry an operation beyond the lines marked out prior to opening the abdomen, as I have previously hinted. Such being the case, it is especially to be urged that the operator hold this fact always in mind, and have provisional permission to extend the operation as far as in his judgment the best interests of the patient are subserved. Now, while an extension of a proposed operation may certainly be justifiable in the interests of the patient, the extreme of this proposition comes up in the right of a woman to refuse operation even to save her life, as for example in puerperal peritonitis. The law may say that suicide is improper when attempted by violence, yet it will not interpose and compel the consent of a patient to an operation to save life. Even if it should or could do so no surgeon would be willing to operate under such circumstances, where such contributing influences to the success of the operation as the cheerful assent of the patient, would be lost. But if voluntary suicide is wrong, enforced sui-

cide is much more so. A woman may be urgent in her demands for relief, while her husband perversely refuses to consent to surgical interference. Though the wife may possess the legal right to insist upon an operation, the husband's perverseness is among the most serious obstacles to contend with. Here, if anywhere, the law should interfere and compel the consent of the husband to permit his wife to exercise her own judgment in deciding, under expert advice, upon steps necessary to save her life. A man may, with as much reason, be justified in preventing assistance to his wife in rescuing her from his burning house, as to interfere with her personal prerogative in deciding any other question in which her life is involved. A similar set of questions are to be considered with reference to minors and guardians, and parents and children.

With the operation completed the after-treatment next claims consideration. If special training is required both to prepare the patient properly and to do the operation, it is equally necessary to enforce a special technique in the after-treatment. It is not sufficient that a trustworthy nurse who has had special training be left in charge; the surgeon himself must not only know what is to be done, but he must also do much of the work with his own hands. Herein consists the danger of grafting new methods unto old ideas. To illustrate: opium was the fundamental, next to the knife, of all ancient surgery. A surgeon would quite as soon have thought of doing an operation with his finger-nails, as to have omitted in the after management the use of morphia or an opium suppository. Now, if any one thing has been shown to be on the average dangerous in this branch of surgery, it is the use of opium in any form. That the older men, as a rule, find it difficult to bring themselves to an understanding of the fact is not strange; but in so far as they are unable to resist the temptation to administer opium, by just that much is their incompetence to manage these cases to be measured.

The like is true of the intra-abdominal application of chemical solutions, which are, under the misnomer "antiseptics," but too generally merely irritants. The idea of Listerism must not be carried chemically into the abdomen, if we would escape complications otherwise to be eliminated. Over refinement is as dangerous in its way as too little refinement.

So, after the operation, it is to be insisted upon that unless the surgeon is accorded absolute control of the patient, even to the point of making the family physician merely an agent in accomplishing what, in his judgment, is required from an operative standpoint for the patient's welfare, no responsibility as to results can be assumed. Indeed, it is best to have such understanding previous to an operation, and if there is demurring operation should be refused. When a sur-

geon is chosen to do an abdominal operation of any kind whatever, it should be done with a full confidence in his ability to manage the case from its inception to its completion, and interference with his wishes or directions should not for a moment be thought of or tolerated. If the results are then not satisfactory, from any bad behavior on the part of the patient, the friends, or the attending physician, the operator is not responsible.

An ethical question may arise in this relation in case, after an operation, the patient desires to discharge the attending physician and to retain the services of the surgeon who has been called to do the operation. This would place the surgeon in the position of being accused of sacrificing the patient to the "Code" if he should refuse to attend, and at the same time subjects him to the criticism of professional thievery if he continues in charge of the case. Since these refinements would scarcely serve one in a court of law; this point should be thoroughly explained to the patient previous to the operation, and the understanding reached that the surgeon for the time being accepts charge of the case simply as the pilot who steers the vessel through dangerous waters, to resign as soon as she has reached and safely passed the danger line. On the other hand, operations for incompetent men who refuse after assistance, although unable to take intelligent care of the patients themselves, should be avoided, as should likewise be operations in which a man with no experience whatever seeks the assistance of a competent operator in order to have the name of operating. In these cases, if the patient recovers the "assistant" gets no credit; if the patient dies he gets all the blame.

HOSPITAL TREATMENT.

The hospital treatment of abdominal cases needs some elucidation. As a rule a general hospital is not an ideal place in which to open the abdomen, yet they are usually equipped with many conveniences that facilitate the work for the surgeon, and so he often operates there on that account. Private hospitals are less objectionable, and many such are without reproach in this regard. The technique of that management of such cases which is to-day conceded to be the best, is little understood, speaking generally, by the physician in whose charge they have been previously, or for that matter by the general practitioner commonly; hence the great tendency to seek the shelter of either the public or private hospitals. Such being the case, it is well to take cognizance here of the fact that very unjust strictures often arise from ignorant criticism of the management of individual cases in hospital, and a feeling occasionally is excited both against the hospital and the surgeons connected with it. This was lately illustrated in a trial of a prominent

operator in the State of New York, upon an indictment for manslaughter. A woman who had been operated at the defendant's private hospital, desired to go home on the fourth or fifth day; her friends coöperated with her in the desire and actually did so remove her. She died of septic peritonitis soon afterwards, hence the indictment and trial. It may be proper to add that a prominent journal, of a hitherto reputable standing, lent its influence to accomplish the ruin of this surgeon, thus compromising the good name of legitimate journalism. The surgeon happily was vindicated by the court and jury.

THE TRANSPORTATION OF CRITICAL CASES.

This brings me to remark that the removal of patients who are suffering with peritonitis, ruptured tubal pregnancy, gunshot or stab wounds of the abdomen, and other critical conditions or injuries, may well receive the attention of the abdominal surgeon; for they often require transportation to more convenient and healthful environs before operation. If this be not done with care and with due regard to the particular disease or injury involved, it may exert an abiding influence for harm upon a subsequent operation. Our entire ambulance system may, therefore, be regarded with a jealous eye by the abdominal surgeon, and when possible he should superintend in person the removal of cases that he proposes to operate upon.

There are many other important questions that have an intimate relationship to the medico-legal status of the abdominal surgeon, *e. g.*, the operating for irregular practitioners; operating at a distance from home, and leaving incompetent persons in charge, etc., but time warns me that I must not dwell.

THE AFTER-CARE OF SPECIMENS.

As a last consideration in this group of thoughts, therefore, I desire to bring to the notice of the Section the necessity of careful guarding of the specimens removed. It is a well known fact that after a growth has been preserved in alcohol, it becomes distorted, decreases in size, and that the original lesion for which it was removed is often unrecognizable. If specimens of this sort should fall into the hands of an ignorant patient, one capable of being wrought upon by a malevolent medical or surgical "brother"—Heaven save the name—untold mischief may result. There is yet a feeling rife in the bosoms of some operators that they, alone, must hold majestic sway of the world's operations, and that any one who also attempts to do the work in which they are engaged must be put down at all hazards. They are members of our medical societies, they are usually subscribers to the "Code," are generally prominent in the affairs of church, and are yet little better than professional blackmailers. They scruple at noth-

ing to cast disrepute and discredit upon other men's work, stooping even to get hold of specimens to misrepresent them. The spirit that applied to Atlee the title of "the greatest rascal in Philadelphia" still stalks abroad, and that which prophesied the penitentiary and a shaven head for another of Philadelphia's famous operators is still to be recognized and to be scotched. I deem it of the first importance that specimens should not pass into the hands of patients, and that they should be either kept strictly away from the laity or, if that is impossible, destroyed.

CONCLUSIONS.

The factors, then, that enter into the inquiry, "What is the medico-legal status of the abdominal surgeon?" and that largely determine that status, may be grouped and summarized as follows:

1. The operator's ability. What has been his apprenticeship, what his surgical aptitude, his experience, his fertility of resource—in short, his abdominal instinct?
2. The propriety of the operation. Has this been established beyond reasonable doubt, and have its necessity and dangers been fully explained to the patient and his or her friends; or, in case of minors, to guardians or parents?
5. The consent of the patient. Has this been obtained in a legal and binding manner, and have the near friends also consented; and in case of minors have the parents or guardians legally consented, and is there indubitable proof of this?
4. The preparation of the patient. Has this been adequately done in accordance with the modern rules of abdominal surgery?
5. The anæsthetic. What form of this was used, and was the anæsthetizer experienced in the administration of anæsthetics? Were the proper precautions taken to determine the comparative safety of the anæsthetic to the patient?
6. The operation. Has it been performed with that skill that the present light of the science would demand?
7. The after-treatment. Was this in all its details scrupulously and zealously carried out under the eye of the operator? Was a skilled nurse employed who faithfully attended to her duties? Did the attending physician yield absolute control to the operator?
8. The environment. Was the operation done in hospital, public or private, or at the home of the patient?
9. The transportation of the patient. Was the patient removed prior or subsequent to the operation? If so, under what circumstances? Was it with the advice and consent of the surgeon, and under his superintendence?

On a trial for manslaughter resultant from a disastrous abdominal operation, some or all of these questions would form proper subjects for inquiry by the court, and therefore appear ger-

mane to the purposes of this discussion. Doubtless others will be dealt with by the authors who jointly appear in this debate. I will therefore conclude what I have to say in a few brief sentences bearing on the rights of patients and operators.

A patient has the right to refuse operative treatment, however urgent and imperative the need.

After operation the patient has the right to refuse further attendance or treatment from a physician or surgeon who may have been in charge, either as operator or otherwise.

The patient, if sane, has the right to be removed at any time she may elect. Her action or movements, her acceptance or non-acceptance of a course of treatment by her physician are matters of her own option over which he can exercise no legal control. She can go counter to or in accord with his advice as she may will. He cannot exercise over her person any authority beyond that to which she consents.

For any act of duress the physician could be held legally liable.

In the matter of the husband, his legal control over the wife would not prevent her from submitting to surgical or other treatment at the hands of a physician of her own choice, but with her consent the husband would have the right to direct or control her movements in the face of any protest of the physician.

The same principles in a modified form apply in cases where there are guardians.

From the foregoing it will be seen, that the physician is absolutely helpless in all such cases as he cannot reach and control by moral suasion. This places the abdominal surgeon at a peculiarly trying disadvantage, for he is in the rather anomalous position of incurring great legal responsibility in cases where he has few legal rights or privileges.

284 Franklin Street.

THE USE OF COMMERCIAL MILK SUGAR IN INFANT-FEEDING.

Read in the Section of Diseases of Children at the Forty-first Annual Meeting of the American Medical Association, Nashville, Tenn., May, 1890

BY E. F. BRUSH, M.D.,

OF MT. VERNON, N. Y.

Some time ago a gentleman came to me, who had been sent by his physician for me to discover, if I could, what the trouble was with the milk which he was feeding his baby. He brought a sample with him, it was very slightly gray in color, and the caseine was precipitated in a fine granular deposit, the odor was slightly disagreeable. On inquiry, I found the mixture to be that known as the "Meigg's mixture" as recom-

mended by Dr. Robert in the article on "Infant Feeding" in Keating's Cyclopaedia. After a thorough investigation as to the milk and cream, I could find nothing wrong with these constituents of the mixture. I then ascertained that he had been using the mixture for some weeks, and that he had not observed the foregoing change before. Then I questioned him as to what new conditions were existing when this change took place and I learned that he had just procured a new supply of milk-sugar. "But," he said, "It cannot be that for I got it where I have always bought it." I told him to go to some other store on his way home and get another supply and try that, and report to me the result. He returned in the afternoon and told me that the whole trouble had been in the sugar; because, when he went home and used the second lot, the mixture appeared all right, and to assure himself that this was the case, he again mixed a quantity with the first milk-sugar and found the same change taking place in the food mixture. I have ever since exceedingly regretted my foolish oversight in not securing the troublesome sugar. I thought I could look the matter up in the books and find there what the trouble was, but after diligent search I found that there was practically no literature on this subject. By this time the man had unfortunately thrown away the bad sugar. I have been ever since trying to find out what was in that sugar. It was purchased at a reputable first-class drug-store and the proprietor, I know, deals only with reputable high-class firms. I could not get a sample from him because he had returned it to his wholesale supplier when his customer made his complaint. Since then I have found that we know very little about this highly recommended constituent in mixtures for the artificial feeding of infants. Hahnemann discovered years ago that the sugar of milk had the least appreciable effect on the human system of any substance he had tried, and hence, he recommended it as a vehicle for the administration of medicine. Previous to this its use was very limited and its manufacture was confined to Switzerland. Now, however, with our pepsine powders, tablet triturates and baby-foods it has become one of the regular articles of commerce, and its consumption is computed by tons; in short every creamery in the country where cheese is manufactured, milk-sugar is one of the by-products and large quantities are still imported. It is found in the wholesale market in large cobs with a stick running through the centre resembling the barley-sugar of our youth and also in coarse irregular crystals resembling somewhat coarse salt, and in the retail stores we find it in the fine powdered condition. The market price last winter at the time of my inquiry was 14 to 18 cents per pound for the crystal cobs and 12 cents for the powders.

No wholesale man of my acquaintance could enlighten me as to this difference. It is well known that milk-sugar is one of the difficult articles to powder properly, and there is considerable waste in the crystal owing to the stick on which it is crystalized. This is not a scientific point, but it is one of the things which I learned during several years of intermittent investigation and it may be interesting to some people.

One of the faults of physiological chemists is that they make no distinction between a substance existing in a natural condition and that substance eliminated and isolated by chemical means. Thus, the sugar of milk of commerce and the sugar of milk as it exists in that fluid are regarded by the chemist as one and the same thing. Hence, the physician has been led into the error of thinking that as the sugar in milk is that designed by nature as the best saccharine nutrient therefor, the isolated sugar must fulfil the same function. This is not the truth. Sugar of milk in that fluid is all assimilated, and the milk-sugar of commerce when added to baby food is eliminated both by the kidneys and bowels. This, I have demonstrated by numerous experiments. I have never found sugar present in the urine or fæces of babies fed at the breast, but in three cases of infants fed with mixtures containing commercial milk-sugar to the amount of three ounces or more in twenty-four hours (as in Meigg's mixture) I have always found sugar in the urine and fæces demonstrated by Fehling's test. The fæces I macerate in boiling water, boil the filtrate and refilter, testing the final filtrate. I have never endeavored to ascertain the exact amount of securing sugar, but the reactions have always been definite and well-marked. To-night I received two cubic centimeters of urine from a baby 10 months old fed on Meigg's mixture, and this tested with Squibb's standard Fehling's solution indicates .025 per cent. of sugar. Therefore instead of being of value as a nutrient it must be harmful, to what extent, I am not at present prepared to say. A substance that is not broken up in the system but eliminated without change, if it be not an absolute poison will produce little if any appreciable immediate effect. Hence, Hahnemann was right in his observation as to the effect on the system of administered milk sugar. Routh also in his work on "Infant Feeding" recommends milk-sugar because it undergoes "fermentation less readily than the ordinary sugar." This statement has been repeated by nearly every one who recommends the sugar of milk as an infant food. I think this statement of Routh would be rather against any article of food because any substance that spoils quickly or responds readily to any of the fermentation changes will also respond quickly to the digestive ferments.

Relating to the fermentation of milk-sugar, I

have made the following experiment. I took five test-tubes, and in each placed two drachms of a saturated solution of milk-sugar, each tube containing a solution from a different sample. Into each tube I dropped two drops of brewer's yeast; in twenty-four hours each sample responded to the test for alcohol by chromic acid. With these five tubes I placed at the same time a sixth containing a solution of cane sugar of the same strength as that of the milk-sugar solutions; in this solution also I dropped two drops of brewer's yeast. The cane sugar solution set up active fermentation in five hours. I allowed the six solutions to remain in a living room with the tubes open for three months. When examined after this length of time the water had completely evaporated leaving the tubes dry. The five milk-sugar tubes contained each a large mass of dried mould and some exhibited crystals of sugar on the side of the tube; while the cane sugar tube contained very little residuum. I added to each tube two drachms of water, the original amount of fluid, and I found that the cane sugar had entirely disappeared, while the milk-sugar tubes were each rich in sugar. And now after three weeks in the second solution with all its gathered mould and dust, the sugar is still there. So Routh was right, it will undergo "fermentation less readily" than almost anything fermentable.

Another question that has occurred to me in connection with commercial milk-sugar is, how much sugar does a given quantity of the article purchased really contain? In view of this inquiry I made it a point at one time to buy five cents worth of milk-sugar in every drug-store I came to and thus I collected many samples. Out of these many samples I selected five and submitted them to the tests prescribed by the United States Pharmacopœia. First, solubility. According to the Pharmacopœia milk-sugar is soluble in seven parts water at 59° F. Sample No. 1, not completely soluble, after twelve hours a white precipitate surrounded by a black ring at the bottom of the tube; No. 2, slight black precipitate, enough to cause a decided opacity on agitating the solution; No. 4, solution remained slightly opaque and deposits a dark brown precipitate. No. 5, solution perfectly clear with a few grains of undissolved sugar at the bottom of the tube.

Tests for the presence of cane sugar according to the Pharmacopœia: "If one part of sugar of milk be sprinkled upon five parts of sulphuric acid contained in a flat-bottomed capsule, the acid should acquire nothing more than a greenish or reddish, but no brown nor brownish black color within an hour." The following are the results of my application of this test: From portions of the samples above referred to, No. 1, blackish-brown; No. 2, dark brown; No. 3,

reddish brown; No. 4, light red; No. 5, light red. The Pharmacopœia also states that it is insoluble in alcohol, ether or chloroform. I found sample No. 1 lost 5 grains from $3\frac{3}{8}$ drachms by repeated washing with sulphuric ether and 11 grains by washing with absolute alcohol. No. 3 lost half a grain by washing with sulphuric ether. I did not test the other solutions in this manner, but I sent to James H. Stebbins, Jr., an analytical chemist residing in New York, samples No. 1 and 2 of the foregoing for analysis as to the quantity of sugar contained in each sample. I received from him the following reply:

Dear Sir: The samples of milk-sugar marked as below submitted to me for analysis contain, No. 1, 94.38 per cent.; No. 2, 98.49 per cent.

These are specimens brought in the open market from reputable druggists, and such as are sold to the consumers for infant feeding. When we come to know the manner in which milk-sugar is procured, the only wonder is that it does not contain much less sugar than is indicated by the above analysis. The milk is collected and allowed to stand for several hours in cooling vats; then, it is conveyed to a large tank to be coagulated. Various substances are used to hasten the coagulation. According to Flint' vinegar, cream of tartar muriatic acid and sour milk can be used to produce coagulation, but of course rennet is the most popular and most commonly used agent. This, as we all know, is the fourth stomach of the calf. The directions given for preparing rennet are as follows: "Care must be taken not to use too much water in cleaning, wiping lightly with a moistened cloth until it is clean is the better way. If then blown up like a bladder and hung up and dried, it will retain its power for coagulating milk for years." Pieces of this rennet are steeped in warm water, and the solution from it is added to the milk and then the milk is raised to a temperature above 100° and kept at that until coagulation takes place. Then the whey is drawn off and this whey is evaporated by boiling to one-fifteenth of its original bulk, leaving a brown, viscid, sweetish saline mass. This is dipped out into a tub where the sugar will crystallize in twenty-four to forty-eight hours. These crystals are known as "sand;" this sand is piled on to racks from which the water drains off. The sand is again boiled in water to a sufficient concentration and the sugar is allowed to crystallize in sticks. It will thus be seen that many of the other crystallizable bodies contained in milk would be included in this crystallization as well as the alkaloids of ptomaines.

I am exceedingly sorry that I have not had time to follow out all the experiments that have been indicated to me while making the few hurried inquiries relating to a subject, which I am positively sure will change the views of many

gentlemen who have taken me to task for recommending the use of pure cane sugar as an addition to infant food when a sugar addition is needed. I really think that the addition of any sugar to good milk is overestimated.

REPORT OF TWO CASES OF SEVERE VOMITING OF PREGNANCY.

Read in the Section of Obstetrics and Diseases of Women at the Forty-first Annual Meeting of the American Medical Association, Nashville, Tenn., May 20, 1890.

BY E. W. MITCHELL, A.B., M.D.,
OF CINCINNATI, O.

It is the purpose of this paper to present merely a clinical study of two cases without entering upon the voluminous and oft-rewritten literature of the subject.

Case 1.—Mrs. P. S., of nervous temperament, delicate from childhood, but subject to no special organic disease, married at the age of 26, and became pregnant within a few months. Nausea and obstinate vomiting developed early. Apparently nearly all nourishment taken was rejected; she soon became so much prostrated as to be confined to her bed. Her weight in a few weeks fell from 102 to seventy pounds. Local examination revealed the signs of an early pregnancy, a conical and very long cervix, no displacement or peri-uterine tenderness. Under treatment by rest in bed, careful regulation of diet, (most of the time an exclusive milk diet), bromide of potash, and oxalate of cerium, the vomiting was somewhat mitigated and nutrition maintained. At three and a half months the vomiting ceased, she regained most of her weight, and was in fairly good health during the remainder of her pregnancy.

Following a natural, but tedious labor, she had post-partum hæmorrhage, and on the third day the development of puerperal septicæmia. For many weeks she hovered between life and death, with a very high temperature and extremely rapid pulse. Recovery was tedious and imperfect, the patient being left with a weak and irritable heart, and a shattered nervous system.

Six years later, (in 1888), having but partially regained her health she became again pregnant, and as before soon began vomiting and to lose strength rapidly. More distressing even than the vomiting, were constant nausea and gastralgia. There was no uterine displacement, no peri-uterine tenderness; there was about the os the usual softening except at the point of a laceration sustained in the first labor, which was hard. The urine contained no albumen, casts, or sugar.

After three weeks treatment upon the same plan as before, during which there were variations for better and for worse, but a gradual loss of strength upon the whole, it was decided, in

* Milk Cows and Dairy Farming.

consultation with Dr. T. A. Reamy, to induce abortion. This decision was made not only upon the threatening character of the vomiting present, but upon the previous history of ill health, and the rapid loss of strength. Since the nausea and vomiting were no worse than in the first pregnancy, she might have survived and as before ceased vomiting at the end of three or four months. The chances, however, in her already enfeebled condition, of living through another pregnancy and parturition were too small to justify the risk. The pregnancy was now so far advanced that it could (in this case) be positively diagnosed; to wait longer was to incur great danger of the patient becoming too far reduced to rally after an abortion. As the patient's condition was such as to allow some delay, electricity was selected as the means, being considered the safest although slower and less certain than some other methods.

A daily *séance* of fifteen or twenty minutes of the Faradic current as strong as could be borne comfortably was given for six days. One pole was placed over the abdomen, the other, (a uterine sound) introduced (with antiseptic precautions) into the cervix—not through it. Soon after the sixth application uterine pains with slight hæmorrhage came on, and the foetus was expelled in about five hours. The placenta not following promptly two fingers were introduced and the already loosened placenta easily removed. A few adherent fragments were removed by the curette and the uterus irrigated with a $\frac{3}{100}$ bichloride solution. The foetus was apparently of about twelve weeks' gestation. After the third or fourth application of electricity there was an amelioration of the vomiting, complete relief after the abortion, and prompt recovery to as good a state of health as preceding the pregnancy.

Her general health has since very considerably improved.

Case 2.—Mrs. C., æt. 27 years, a slender brunette of nervous temperament, has never been very strong; prior to marriage had been treated for "falling of the womb" and "ulceration," and had two attacks of "inflammation of the bowels"—probably pelvic peritonitis. Came under my care, (having recently removed from a distant city), June 10, 1889. Married two years; one child, nine months old.

The first three and a half months of her first pregnancy had been marked by very severe vomiting, with emaciation and prostration sufficient to confine her to bed. It had ceased at the end of that time and she had been well during remainder of pregnancy. Labor natural; convalescence prompt and good; general health better since than before. Menstruation returned four months after delivery; was regular up to period due May 8, which did not appear. Two

weeks later began to have vomiting, which grew gradually worse. At the time of my first visit she was vomiting after each attempt to take food or drink with occasional retching when nothing was taken. Stated that she had been vomiting and retching almost incessantly for over two weeks. The countenance wore an anxious expression and was slightly jaundiced; tongue coated, with red margins; breath offensive; slight salivation; had lost much weight; complained of backache, severe pelvic pain, free leucorrhœa; bowels constipated; vesical tenesmus; temp., 99°, pulse 90, fairly strong. There was some tenderness over epigastrium. She had lost much sleep.

Vaginal examination: uterus enlarged, corresponding to six or eight weeks' gestation, not displaced; cervix lacerated on one side, with deposit of some cicatricial tissue in angle of rent; great tenderness to pressure about whole vaginal vault; no erosion of os.

Ordered nothing to be taken by mouth except carbonic acid water and oxalate of cerium, gr. 4, every three hours; *per rectum*, "beef peptonoids" with chloral hydrate and bromide of potash, each gr. 30.

11 P. M.: Rectal injection not retained; vomiting and retching violent every few minutes; much exhausted; complains of "pain in the womb." Ordered, nothing per os; an opium suppository, which gave relief in almost half an hour, when an injection of 2 oz. of beef peptonoids was retained. Rested well until 4 A. M. when bowels moved and vomiting recommenced.

June 11. Gave in morning vaginal douche of hot water on account of the peri-uterine tenderness; rectal injections not retained; vomiting and retching so incessant and suffering so great that gave morphia hypodermatically, gr. $\frac{1}{4}$ (which gave prompt relief), and in the afternoon an opium suppository followed in an hour by an injection of peptonized milk which was retained; vaginal douche repeated followed by packing of wool saturated with boro-glycerine. In four hours rectal injection of peptonized milk with bromide and chloral $\bar{a}\bar{a}$ gr. 30, repeated. Temp. 99°, pulse 90. Injection not retained. During evening was not vomiting and felt stronger. Slept from 11 to 1 o'clock.

June 12, 7 A. M. Vomiting began again at 1 A. M., temp. 99° pulse 90. Still takes nothing by mouth; retching not quite so severe as yesterday; given morphia hypod., gr. $\frac{1}{4}$, to be followed in one hour by wine-glassful of peptonized milk. 11 A. M. Has slept a little; milk was immediately vomited; retching occasionally. Morphia repeated; rectal injection, 2 oz. peptonized milk with bromide and chloral $\bar{a}\bar{a}$ gr. 30; vaginal douche, followed by packing; ordered bromide of potash, gr. 4, with half wine-glassful of iced champagne every two or three hours.

Rectal injection retained. 5 P. M. She had rested fairly well up to 3 P. M. Now vomiting mucus streaked with blood; temp. 99° (ax), pulse 90; the vomiting is not for some little time after taking the champagne and bromide; ordered, ice-bag kept on hypogastrium; champagne and bromide continued, also the following suppository *per vaginam*; ext. opii, gr. i, ext. cannabis ind., ext. belladon. āā gr. ½. For two hours after applying the ice-bag had no vomiting. 11 P. M. Again retching violently, and vomiting up mucus streaked with blood; hypodermatic injection of morphia, gr. ¼ given. In few minutes relieved and a little hot water was retained. Rectal injection of peptonized milk at 6 P. M. was retained; now repeated, but not retained.

June 13. Has kept on ice-bag and taken champagne and bromide; at 4 A. M., rectal injection, (not retained), peptonized milk and a suppository *per vaginam*; at 7 A. M. vaginal douche of hot water and one above suppositories *per rectum*. 12 M. Has retched and vomited a little; champagne and bromide retained, and enjoyed by patient; nothing else given by mouth, is brighter and a little stronger, temp. 98° (axillary), pulse 90. Urine (as throughout) contains neither albumen, casts or sugar, somewhat diminished in quantity. Rectal injection of peptonized milk with bromide and chloral āā gr. 30, (not retained). 10 P. M. Again vomiting and retching violently, seems greatly prostrated; anxious expression; seen by Dr. Reamy in consultation, who introduced the index finger into cervix. Champagne and bromide and the suppositories, *per rectum*, continued; ice-bag put on nape of neck.

June 14. Slept fairly well; vomited twice only during night; had two suppositories during the night; feels better; temp. 98°, pulse 115. 12 M. Has twice retained 1 oz. of milk, with champagne and bromide; suppositories *per vaginam* every three hours. 7 A. M. A little retching occasionally, no suppositories during afternoon.

June 15. Rested well; is brighter and stronger; vomited twice during night, but not violently; retained peptonized milk; ice-bag kept to nape of neck; bromide and champagne continued; suppositories given twice during night and in early morning. 7 P. M. Retained milk given in small quantities; very little vomiting.

June 16. One severe attack of vomiting; two suppositories during day; other treatment continued.

June 19. Has continued to steadily improve, taking milk in small quantities; a suppository once or twice daily; no vomiting, occasional nausea; diet enlarged a little.

June 20. Stopped bromide and suppositories; milk, ice-cream, and beef-steak, all retained; has a slight uterine hæmorrhage.

June 21, 5 P. M. Free hæmorrhage, uterine

pains; foetus already expelled and lost; placenta in cervix, removed by fingers, a few adherent fragments removed by curette and uterus washed out with carbolyzed solution. Placenta was apparently about eight or ten weeks. Convalescence was good. Some three or four weeks later complained of pelvic pain and back-ache.

Examination revealed subinvolution of vagina and uterus, slight prolapsus, and a tender mass to the left of the uterus the size of a hen's egg. After several weeks of treatment by douches, tampons and galvanism, involution was complete, position of uterus about normal, the mass greatly reduced in size, not tender to touch; the patient free from subjective symptoms. She has since remained well.

When so many remedies are used as in this case it is difficult to decide as to the real effect of any one. Bromide of potash and chloral *per rectum*, so highly commended by Dr. Busey, (*Amer. Journ. Med. Science*, 1878, page 140), and others, had little effect in this case.

Rectal feeding was in this case partially successful, but the nutrient injections were only retained when she was under the influence of opium.

One application to the os of nitrate of silver was made, but not repeated because no apparent benefit followed, and there was no inflammation or erosion. Ether spray to hypogastrium was also without benefit. The ice-bag gave so much relief that the patient clung to it almost constantly after its first application. It did not, however, stop the vomiting, except for a short time at first. The iced champagne was very grateful to the patient and was retained when other things were rejected.

The only remedy which stopped the vomiting was opium, by suppository or by hypodermatic injection of morphia. Vomiting would, however, return as soon as the effects wore off, and it was necessary to gradually increase the dose. In some reported cases, it has failed to control the vomiting, or finally loses its effect when it has been successful at first.

Except as stated in the report, remedies by the mouth were avoided. When the case has reached this stage to persist with internal remedies is not only useless but aggravates the trouble.

Since Copeman reported his success with the method, (*British Medical Journal*, 1875), dilatation of the cervix by finger or instruments has been often used with success. So often, indeed, that Dr. Gill Wylie claims that rigidity of the cervix is nearly always the cause of the vomiting, and that the cases of failure are due to the dilatation not having been done thoroughly enough. When the first dilatation fails, he repeats it. (*Medical Record*, 1884, "Trans. Amer. Gyn. Soc.," Vol. 13, page 259.)

In discussing an able paper upon the subject

by my friend, Dr. G. S. Mitchell, in the Cincinnati Obstetrical Society, Dr. Reamy reports that since 1872 he had so treated thirty cases, with success in two thirds. He at the same time points out that the cases adapted to the treatment, and in which it is successful are those in which there is rigidity of the os. (See *Cin. Obstet. Gaz.*, 1885, page 118.)

Abortion not unfrequently follows, as in this case, and hence the procedure should be reserved until other means have failed, but not delayed until the patient is too greatly exhausted.

As bearing upon etiology we may note in both cases the absence of displacement. In each a lacerated cervix with some cicatricial deposit. The softening of the tissues about the *os externum* is about as much as we are accustomed to find at the corresponding periods of pregnancy, except just at the point of laceration. Both had histories of preceding inflammatory attacks. Both were delicate women of nervous temperaments. In neither was there any evidence of "endometritis gravidarum," to which as a cause in some cases attention has been drawn by Veit, Ebell, Jaggard and others, the placenta in both being quite healthy, and neither had any history of endometritis.

The tubo-ovarian disease discovered in Case 2, may have existed previous to the pregnancy, or may have developed after the abortion. If it pre-existed it may have played a rôle in causation. Case 1 had suffered much of indigestion since the illness following her first confinement, yet her vomiting was less severe than in Case 2, who had no history of previous gastric trouble.

There has been in neither case any history or physical sign of tuberculosis. Neither case presents a strumous diathesis.

GLANDULAR HYPERTROPHY AT BASE OF TONGUE. LINGUAL TONSIL. CASE REPORT.

Read in the Section of Laryngology and Otology at the Forty-first Annual Meeting of the American Medical Association, Nashville, Tenn., May, 1890.

BY A. B. THRASHER, A.M., M.D.,
OF CINCINNATI, O.

It is not an unusual thing to find hypertrophy of the glandular tissue at the base of the tongue. When in a normal condition this region is crowded with glands which are large in comparison with the other lingual glands. But in the case which I report to you to-day the tissue, in size and appearance, was a real lingual tonsil, as can easily be seen from the photograph which I herewith present to you.

Mrs. H., æt. 44, was sent to me in May, 1884, by her family physician, Dr. DeWitt, of Mt. Auburn, for the removal of a tumor at the base of

the tongue. When young she had been quite delicate and menstruation had been delayed until her nineteenth year. About this time she had a severe attack of "sore throat," the nature of which I was unable to more than conjecture, which left her with a bad cough and a sensation of a "lump in the throat." Her general health then grew better and after about two years her cough ceased, but the feeling as of a foreign body in the throat remained. This, however, did not give rise to much annoyance until a few years prior to consulting me, when the "lump" seemed to increase in size and occasioned much disturbance. Her voice grew thick and her articulation became very indistinct. This was so marked that many of her words could only be understood by noting the connection. She suffered most from choking while eating. The throat seemed to not readily grasp the bolus of food, and swallowing became a source of great anxiety.

The choking on deglutition grew worse, and would at times produce distressing dyspnea, the sufferer "growing black in the face," as forcibly expressed by her daughter. Solids and liquids would both produce choking, although she thought solids gave her the more trouble.

The family had grown accustomed to these choking spells and thought little of them, and in like manner they treated the changes in voice.

After a more alarming attack than usual Dr. DeWitt was asked to examine the throat, when he at once discovered the tumor and referred her to me for operation.

Mrs. H., on consulting me, was poorly nourished and anæmic. Her voice was muffled and indistinct. On examination of the throat a tumor was easily seen on the base of the tongue just anterior to the epiglottis. The growth presented quite the appearance of a child's tonsil, and was perhaps a half inch in diameter and of about equal elevation. The surface was smooth and firm to the touch, and there was at the time some surrounding inflammation. There was no hypertrophy of the glandular tissue between the pillars of the fauces or at the pharyngeal vault.

I slipped a loop of No. 5 piano wire around the base of the tumor, drew the wire tight, then turning on a current from my cautery battery, drew the heated wire through the hypertrophy, making a clean, bloodless cut. The wound healed kindly and the patient experienced no further discomfort. I had a section of the growth examined by a competent microscopist, and he pronounced the tissue quite like that of the faucial tonsil.

I examined the patient again this March and there is no evidence of a return of the growth, and she has had no further difficulty in articulation or deglutition.

MEDICAL PROGRESS.

TENDON REFLEXES.—At the Ninth Congress of Internal Medicine Dr. STERNBERG, of Vienna, read a paper on this subject, based on observations made on 1,500 patients in the clinics of Professor Meynert and Dr. Redtenbacher. The object of the experiments was to determine the "components" constituting the tendon reflexes, that is, the effects produced by shaking of the muscle, the tendons, the bone, etc., and to separate these various phenomena from each other. In this way he succeeded in showing that the so-called tendon reflexes consist of two phenomena, namely: a bone reflex and a pure muscle phenomenon, which, most probably, is also a reflex. The bone reflex consists in the fact that a shock to the bone, particularly in the direction of its longitudinal axis, irritates the nerves of the periosteum and the articular surfaces, and this produces a contraction of all the muscles belonging to the bone. The muscle reflex consists in the fact that a stretched muscle becomes contracted when a shock is transmitted to it in the longitudinal direction. The tendon only plays a mechanical part. No reflexes originate from the nerves of the tendon. The existence of reflexes of the fascia cannot be proved. In contractures occurring after localized cerebral affections in various diseases of the spinal cord and in articular processes, the tendon reflexes are invariably increased. In contractures which occur in large cerebral hæmorrhages, cerebral tumors and abscesses, uræmia and meningitis, and paralysis agitans, the tendon reflexes are never increased, and very frequently are diminished. These two forms of contracture can occasionally be distinguished by the tendon reflexes.—*Brit. Med. Jour.*

RESEARCHES ON RABIC VIRUS.—DE BLASI and TRAVALLI (*Riforma Medica*, 1890), have recently made some observations upon the effect of different substances in lessening or overcoming the virulence of rabies. Control experiments were made in every instance and a like quantity of fluid was injected into the abdominal cavity. The method used was to excise a small portion of the spinal cord of a rabbit dead of rabies, make an emulsion, mix it with the substance under examination and inject this into the abdominal cavity. The known effect of light and heat upon the rabic virus would lead one to think that it would be easily affected by chemical action, and such was found to be the case. The acids proved to be very active in destroying the poison, a 5 per cent. solution of hydrochloric acid destroying the infectious principle in five minutes. The same result was reached with salicylic acid, while lemon juice destroyed the virus in three minutes. The writers observe that lemon juice has long been a popular remedy

in dog bites with the people of Italy. Creolin also proved efficient in a 1 per cent. solution, after an exposure of three minutes. The least efficient of all the substances examined were carbolic acid, iodoform and iodol. The former required fifty minutes in a 5 per cent. sol., one hour in a 3 per cent. and two hours in a 2 per cent.

ANTIRABIC INOCULATION AT PALERMO.—Statistics published in the *Riforma Medica* of May 20 by Drs. L. DE BLASI and G. RUSSO TRAVALLI show that 156 patients were treated in the Antirabic Institute at Palermo between March 1, 1889, and the end of February, 1890. In 86 of these it was proved experimentally that the animal which inflicted the bite was rabid; in 2 others the same conclusion was drawn from the fact that persons bitten at the same time and not treated died of hydrophobia. Of the whole number of patients 143 were bitten by dogs, 7 by cats, 1 by an ass, 1 by a mule, 3 by calves, and 1 by a rabbit. The variety of animals is greater than is usual in such reports, the case of the rabbit being especially remarkable, inasmuch as the manner in which it had contracted the disease is unknown. Drs. de Blasi and Travali say that the case is the first one recorded in which a rabbit has been the subject of rabies "of the street." None of the patients died, and in the three years during which the institute has been in existence, out of 292 cases treated (in 224 of which the nature of the disease was proved experimentally) there have been only 4 deaths. Two of these occurred at the beginning of 1887, in the first batch of 66 cases, a rate of mortality of 3.03 per cent.; in the remaining 382 cases the death-rate has been only 0.52 per cent. The treatment adopted is somewhat more "intensive" than that of M. Pasteur, the length of the course being now twenty-two days.—*Brit. Med. Journal.*

PERITONITIS IN TYPHOID FEVER.—DR. RENNERT reports three cases of typhoid fever with perforation of the bowel which recovered in the Friedrichshain Hospital in Berlin. In an interesting paper on the subject he states that he finds that peritonitis may occur, even when there is no actual perforation, from the passage of pathogenic organisms through the partially destroyed walls of the ileum. As a rule, the peritonitis set up in this way is of a more circumscribed character than that which is caused by perforation; but, nevertheless, in some cases it is so extensive that it is impossible to avoid mistaking it for that due to perforation. For the purpose of prognosis it is of great importance to make out whether the flatus permeates the whole abdominal cavity, or whether it is confined within a limited area by the matting together of the coils of intestine. Dr. Rennert considers that the well-known sign of disappearance of the liver dulness is a strong

proof in favor of the generalized affection; but if there be no change in the hepatic area, the prognosis is far more favorable. In this latter case it is quite possible for the patient to recover, but in the former the diffuse peritonitis which results invariably leads to a fatal termination.—*Lancet*.

ATROPHY OF THE BONES OF THE SKULL.—PROF. M. J. ROSSBACH (*Deut. Arch. f. Klin. Med.*, 2, p. 161, 1890), describes an interesting and rare case of neurotic atrophy of the bones of the skull. A woman 58 years of age, after profound emotional disturbance, was taken with a severe headache, which was followed by a small depression over the parietal bone. The pain continued, and with it deep grooves developed over the vertex, until now a groove about 1 cm. in depth extends from the upper portion of the occipital bone forward about 10 cm. to the middle of the parietal. In the last two weeks two deep grooves have developed symmetrically upon each side of the frontal bone, one of 10 and the other 9 centimetres in length. The hair was slightly gray and somewhat whiter over the depressed regions. The patient complained of headache, loss of sleep and appetite, otherwise there was no special change.

EFFECT OF THE EXISTENCE OF UTERINE FIBROIDS ON THE OVARIES.—DR. POPOFF, late *Chef de Clinique* under Prof. Lebedeff, of St. Petersburg, has published an account of a series of twenty cases of fibroma of the uterus, where the ovaries were removed and carefully examined. He found that they were invariably more or less diseased, the most general morbid condition being a hyperplasia of the connective tissue, with corresponding enlargement of the organ. The cortical portion was pretty equally affected, sometimes small yellowish spots being seen, sometimes the walls of the vessels being thickened so that their lumen was partially occluded and the nerves were atrophied. In some cases the follicles became dilated, a multilocular cystic form of degeneration resulting; in others they became obliterated altogether.—*Lancet*.

CYSTICERCUS IN THE EYE.—A. VOSSIUS (*Berl. Klin. Wochenschr.*, 1890, No. 1), describes the removal of one of these cysts from the vitreous body. A girl 18 years of age, had never suffered herself from tapeworm, but had been for a long time at the house of an aunt who was afflicted with one of these parasites. Four weeks after her return home she began to lose the sight of the right eye. The loss of vision led to an ophthalmoscopic examination, when the cysticercus was seen in the vitreous attached to the retina near the macula. The vitreous about the entozoon was cloudy. No other cysticercus were to be seen in the retina, the internal organs were normal and

the general health good. The operation was done after Graefe's method and was so far successful that vision of $\frac{20}{80}$ was secured. The later ophthalmoscopic appearances were a reddened centre to the macula surrounded by a number of shining points, in number and arrangement closely resembling albuminuric retinitis.

At the close Vossius gives an interesting review of the more important literature of this condition.

AMOEBAE IN DYSENTERY.—DR. W. OSLER, of Baltimore, contributes a note (*Centralblatt f. Bakteriologie*, vii, 23) confirmatory of the observations by Lösch, Koch and Kartulis on the presence of amœboid organisms in the fæces and intestine of dysentery, Kartulis also finding them in an abscess of the liver associated with that disease. Dr. Osler says that, so far as he knows, the presence of these organisms has only been found in Russia and Egypt, which adds to the interest of his communication. The patient had lived in Panama for five years, when he suffered from chronic dysentery. In May, 1889, he traveled to Europe, spending several months in Vienna, when he had another attack of dysentery. He returned to Baltimore in December and was seen by Drs. Osler and Friedenwald. For more than six weeks he suffered from irregular pyrexia, slight rigors and sweating. On March 22 Dr. Tiffany incised two abscesses in the right lobe of the liver. The bile-stained creamy pus was found by Dr. Osler to contain amœboid bodies, about twelve times the size of white corpuscles, and showing active movements. The protoplasm was composed of an external homogeneous portion and a central granular substance, in which were numerous vesicles of various size, and ill-defined nuclei. The amœbæ remained active an hour after the pus had been evacuated; and in that which escaped afterwards abundance of these organisms were found, in one instance retaining their activity for more than six hours. The fæces, which had partly lost their dysenteric character, were found to contain similar actively moving amœbæ. Dr. Osler says that the structure of these organisms, their movements and general appearance, leave no doubt as to their parasitic nature. He adds that his observations were confirmed by Prof. Welch and Dr. Councilmann.—*Lancet*.

RESECTION OF THE LIVER.—This subject was thoroughly discussed in the April meeting of the German Surgical Congress at Berlin. PONFICK demonstrated that in rabbits three-fourths of the organ might be removed without injury to the health of the animal, and that there was actually a regeneration of the liver tissue that amounted to about 120 per cent. This did not correspond with the experience of Gluck, who had found that animals could not survive the loss of two-thirds of this gland.

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SATURDAY, JULY 5, 1890.

OVARIAN NISUS NOT THE DETERMINING CAUSE
OF LABOR.

TYLER SMITH is chiefly responsible for the notion of the "ovarian nismus" at the tenth month as the determining cause of labor. He was of the opinion that ovulation occurred periodically during pregnancy as in the unimpregnated state, and that the reflex irritation, consequent upon the maturation of the ovum corresponding to the tenth menstrual epoch, was sufficient to determine an increased afflux of blood to the uterus, and thus to provoke labor.

At once, M. CAZEAUX made the pertinent inquiry, if labor is entirely dependent upon ovulation why does it usually occur at the tenth lunar month, and not at the seventh, eighth, or eleventh? At a more recent period, it has been demonstrated by dissection that menstruation never occurs during gestation, and that probably ovulation is suppressed. Still Tyler Smith's hypothesis receives prominent place in our text-books, and a widespread conviction of its truth is made manifest by the frequent allusions to ovarian influence in the medical press. Even among operators, the belief is common that both the ovaries cannot be removed during pregnancy, without the interruption of the condition. Only a few months ago, this opinion was freely expressed in the columns of the *New York Medical Journal*.

Within the year two cases of extirpation of both ovaries and tubes during pregnancy have been recorded that yield significant evidence.

The first case,¹ reported by DANIEL T. NELSON,

of Chicago, is of particular interest, since the ovaries and tubes were in a relatively normal state. Indeed, the conditions of this operation were nearly identical with those that might have been supplied in a laboratory of experimental physiology. Accordingly the evidence furnished by this case is of decisive value.

Both ovaries and tubes were removed November 20, 1888, under the alleged indication of hystero-epilepsy, and the patient, after an uneventful pregnancy, gave birth to a fine, healthy baby on July 31, 1889. Careful examination of the specimens shows that both ovaries and tubes were completely extirpated. Moreover, the woman has not menstruated since the operation. Of course, there remains the possibility of the presence of a supernumerary ovary or of disseminated ovarian tissue. It is almost certain, however, as Dr. Nelson thinks, that the woman was pregnant about one month, when she was castrated. It is far from our purpose to criticise the alleged indication for operation in this case. But it must be remarked, in passing, that clinical experience teaches that pregnancy usually exerts a beneficial influence on epilepsy and hystero-epilepsy, just as it commonly aggravates chorea. As an abstract question, therefore, the deliberate performance of Tait's operation, on a pregnant woman, for the relief either of epilepsy or hystero-epilepsy, is a totally unjustifiable procedure.

Dr. Nelson has our sympathy in his failure to detect the fact of pregnancy. At so early a period, the mistake is perfectly excusable. He deserves commendation for the courage that enabled him to publish a case that might easily call out unpleasant criticism.

BANTOCK,² of London, records the second example. The case was one of double dermoid tumor in a married woman aged 30, who had her first child in July, 1889. She last menstruated on September 10th, 1889, and she came into the Samaritan Hospital in the beginning of December, with a large abdominal tumor on the right side. About the middle of December abdominal section was performed, and both ovaries, greatly disorganized by the presence of dermoids, together with the tubes, were removed, with full knowledge that the patient was pregnant. She did not abort, and was doing well with every prospect of going to term when last heard from.

¹ Medical News, May 3, 1890, pp. 416, 447.

² The British Gynaecological Journal, part xxi, May 1890, p. 4.

Bantock has promised a further communication upon the case with the result of the anatomical study of the ovaries, that will be awaited with interest.

In this case the ovaries were so extensively diseased that in the interpretation of the effect of the operation on pregnancy some allowance must be made for this pathological element in the experiment.

The evidence furnished by these two cases, in the absence of all other proof, is sufficient to establish finally the proposition that the "menstrual nismus" is not the primary, essential and determining cause of labor.

PHYSICIANS FOR CORONERS.

A few weeks ago we had occasion to refer to non-medical coroners, and to the efforts made in Colorado to overcome some of the more serious defects in the administration of that office. In Illinois all the evils of the political coroner are most pronounced, and, doubtless, any effort that may be made to correct them will meet with determined opposition from the office-holding class. The laws governing coroners in Illinois are but a prototype of those in a majority of the States; only a few having so far made any effort to reform this relic of the middle ages. The Chicago Medico-Legal Society nearly two years ago appointed a committee that submitted an able report summarizing the abuses of the present system and urging the adoption of the Massachusetts law. This law in effect substitutes medical examiners, appointed by the Governor, having substantially the same powers as coroners, in that they may summon a jury to aid them in cases of suspected criminality. It, however, dispenses with the cumbersome and inefficient jury of laymen in arriving at the cause of death.

A curious reform has been adopted by the present coroner of Cook county, which is in effect a recognition of the correctness of the principle involved in the appointment of medical examiners. He has recently appointed a physician as one of his deputies; and in cases of death from unknown causes he is sent out, and makes an examination; if this reveals that death took place from natural causes, an ordinary physician's death certificate is issued. If crime is suspected he assumes the duties of a deputy coroner and em-

panels a jury. One of the curious anomalies of this procedure is that he, as a witness, must administer the oath to himself, and testify as an expert regarding observations made at the *post-mortem* examination—a sort of coronial Pooh Bah. When the case reaches the courts he again becomes a plain physician. We are informed by the coroner, through the public press, that this system works well, and results in a considerable saving to the taxpayers in decreasing the number of inquests, as well as facilitating the work in the coroner's office. With such an example from a layman, should not physicians everywhere, and particularly our public health officers, take up and advocate reform in this work until every medical position is filled by a medical man!

THE NEW VOLUME.

So far as we know, the conclusion which was reached seven years ago, to publish the transactions of the Association in the form of a weekly journal, has met with universal favor. The difficulties to be encountered were such as to require the most cautious procedure, and more or less of criticism was to be anticipated, especially from those who were least familiar with the responsibilities to be assumed. Without financial basis, and relying wholly upon the cordial coöperation of the members of the Association, its only basis of support was their fidelity and forbearance. This support THE JOURNAL has had, and by reason of this it comes to the opening of its fifteenth volume with better assurances for permanent success, and with better promise of useful service to the profession than ever before.

The relations of THE JOURNAL to the medical profession are unique. It is neither the organ of publishing houses nor the servant of manufacturers. It is subject to no individual control, and it serves no man for pecuniary profit. It belongs absolutely and exclusively to the American Medical Association, and as such every member of the Association sustains to it a proprietary relation, and holding such relation, each is responsible for its success or failure. The power to control its management vests in the membership, and the wisdom with which that management shall be governed will determine as to its future prosperity. If it is to become the leading medical journal of this country, it will become so

through the instrumentality of the membership. If it is to be replete with the best of medical literature, it will be so largely by reason of their contributions. If its circulation shall be widely extended, it will be in answer to their exertions. If the Association shall be able to build itself strongly and wisely until it shall represent the united power and influence of the profession on this vast continent, as it should, *THE JOURNAL*, as its accredited organ, will have absolute freedom to voice the sentiments of the profession upon all medical subjects. If it remain free from financial dictation and is subject to neither partizan nor selfish purposes, it has before it a future full of promise and possibilities which can hardly be estimated. It may become a most efficient agent in the promotion of harmony among all honorable practitioners. It may secure to its readers the best of medical literature from home and foreign sources. It should be able to furnish a complete and reliable *résumé* of all genuine medical progress. To the fulfilment of these purposes the management pledges its best endeavor.

With the commencement of a new volume it is a fitting time to secure new subscriptions, and in this work every member of the Association, if they will, can lend a helping hand.

EDITORIAL NOTES.

THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION will meet at Louisville, Ky., Oct. 8, 9, 10, 1890. Titles of papers should be in the hands of the Secretary, Dr. E. S. McKee, 57 W. 7th St., Cincinnati, as soon as possible. The American Rhinological Association will meet at the same city the same week, viz.: Oct. 6, 7, 8, 1890. Titles of papers should be sent to the Secretary, Dr. R. S. Knobe, National Bank Bldg., Omaha, Nebraska. These two Associations meeting together will attract a large number of the best men of the medical profession, and the well-known Kentucky hospitality will make all welcome and no one will regret going.

HYSTERICAL PERVERSION OF SENSIBILITY.—*The Recorder* for May, has an account of an unusual case of hysterical sensory perversion, quoted from a recent clinic of Professor Leyden, of the Berlin Charité Hospital. The professor exhibited to his class the case of a young woman

belonging to that class of hysterical persons who manifest an abnormal desire to have surgical operations, even of the most painful character, performed on them without any anæsthetic being used. These persons, according to Dr. Leyden, not only do not experience pain, or they will so acknowledge it, but, on the contrary, that which in others produces all the accompaniments of pain, produces in them pleasurable sensation. The young lady, shown to the class, was one who during a hysterical attack fell and injured her face, severing the facial artery and fracturing the lower jaw. The wound was sufficiently serious to require the deligation of both the facial and carotid arteries, besides the removal of a portion of the broken jaw. The patient readily submitted to the operations, but insisted in having them done without any anæsthetic. And she afterwards assured the surgeon that she experienced no pain, but rather great pleasure during the performance of the operation.

MEDICO-LEGAL SOCIETY OF CHICAGO.—The annual meeting of the Medico-Legal Society of Chicago, was held June 7, 1890, when the following officers were elected for the ensuing year: President, Dr. E. J. Doering; Vice-Presidents, Dr. B. Bettman and Judge O. H. Horton; Treasurer, Dr. L. L. McArthur; Secretary, Dr. Edward B. Weston. The following gentlemen were elected active members: Drs. Archibald Church, Sanger Brown, G. Frank Lydston and J. E. Stubbs. At the next meeting of the society Dr. M. H. Lackerstein, in conjunction with Drs. Archibald Church and J. C. Hoag, will present the scientific aspects of Medical Hypnotism, with reports of cases of hypnotic treatment.

THE JOHNS HOPKINS UNIVERSITY.—We are advised that by a recent transaction in Baltimore, in railroad securities, the Johns Hopkins University will come into possession of an income-paying investment, from which \$58,000 will be derived annually. The Trustees have taken the steps necessary to this end in order to avoid the recurrence of fluctuating revenues by which they have been hampered during recent years.

DR. T. G. RICHARDSON, formerly of New Orleans, and President of the Association in 1878, has resigned his connection with the Medical Department of Tulane University, and has removed to Washington, D. C.

THE ILLINOIS ARMY AND NAVY ASSOCIATION. Under the above name a new medical association was organized at Springfield, Ill., on June 26, with the following officers: President, Dr. H. A. Johnson, of Chicago; Vice-Presidents, Dr. A. T. Barnes, of Bloomington; Dr. H. W. Kendall, of Quincy; Dr. Ira Brown, of Milford; Dr. A. B. Agnew, of Samoth, and Dr. E. Gulick, of Alton; Treasurer, Dr. W. J. Chenoweth, of Deselm; Secretary, Dr. J. H. Rauch, of Chicago. About forty gentlemen were enrolled as members. The object is social and medical improvement.

REGULATION OF MEDICAL PRACTICE IN ILLINOIS.—The report of the State Board of Health of Illinois for 1889, illustrates the efficacy of its laws for the regulation of medical practice. When the law went into effect there were in the State engaged in practice 7,400 persons. Of these 3,600 were graduates from some medical college, while 3,800 were non-graduates. In other words, the graduates constituted only 48 per cent. of all engaged in practice. On January 1, 1890, the percentage of non-graduates to the whole number was only nine. From 3,800 the number has been reduced to 575. The total number of physicians in the State is less now than it was twelve years ago.

THE WISCONSIN STATE MEDICAL ASSOCIATION closed its annual meeting in Milwaukee on June 6. The election of officers resulted in the choice of the following: President, Dr. Ladd, of Milwaukee; First Vice-President, Dr. F. E. Wallbridge, of Milwaukee; Second Vice-President, Dr. B. F. Phillips, Menomonee, Mich.; Secretary, Dr. J. R. McDill, of Milwaukee; Assistant Secretary, Dr. H. B. Ogden, of Milwaukee; Treasurer, Dr. Sydney S. Hall of Ripon. The next annual meeting will be held in Madison during the first week in May, 1891.

THE fifty-eighth annual meeting of the British Medical Association will be held in Birmingham, July 29, 30, 31 and August 1.

YELLOW FEVER QUARANTINE AT NEW ORLEANS.—The steamship "Adrian" recently arrived at the Lower Quarantine Station of that city laden with fruit. It is reported that on the passage from Boca del Toro the steward died of yellow fever and was buried at sea. Another case of fever of suspicious character is reported

on the vessel, and the most careful surveillance will be exercised to prevent the invasion of yellow fever at that port.

THE MASSACHUSETTS MEDICAL SOCIETY.—This veteran organization held its 109th anniversary on June 10 and 11. At the annual dinner Dr. Joseph Stedman presided. The toasts and the responses were in keeping with the occasion.

A READING ROOM AT BERLIN.—A reading room is to be established in connection with the Tenth International Congress for the benefit of its members. The current medical literature will thus be at command, and medical men from every section of the world can there review their home journals.

A DOUBLE MONSTER.—There is now on exhibition a double monster, known as the Tocci Brothers. The children are 13 years of age, and were born of an Italian woman living in humble circumstances. The body as far as the shoulders is single, but is double above. The stomach is common to the two children, and if one eats heartily the other has no desire for food, yet it is said that the two are very unlike in their appetites and tastes, one being fond of sweets, while the other cares only for substantials. The genital organs are male, but the face of one of the children is very feminine in its appearance.

NEW HOSPITAL IN BIRMINGHAM, ALA.—The new county hospital in the suburbs of Birmingham is nearing completion. It is a red brick building, 265x68 feet, one story high. There are four wards, which will accommodate about one hundred patients. The ground on which the hospital is built was a gift from Dr. J. R. Smith.

THE FIFTH DISTRICT BRANCH of the New York State Medical Association will hold its eighth special meeting in Kingston, Ulster county, N. Y., on Tuesday, July 22. The meeting promises to be one of special interest, and there will doubtless be a full attendance.

AN EDITORIAL CHANGE.—The editor of the *American Journal of the Medical Sciences*, Dr. I. Minis Hays, will sever his connection with that journal after the issue of the July number. The Drs. Hays, father and son, have been identified with that publication for sixty years. Dr. Edward P. Davis will succeed to the editorial chair.

TOPICS OF THE WEEK.

"EMBALMING," SO-CALLED.

The objections to the crude operation which undertakers practice under the name "embalming" are genuine, and not fanciful or imaginary. Medical examiners in Massachusetts and medico-legal pathologists elsewhere are well acquainted with the mischief wrought by this custom, devised by undertakers to promote their own profit and convenience. Many judicial investigations of death by poison have been effectually blocked and rendered fruitless by this precipitate emptying into the cavities of the dead body, of an unlimited quantity of strong solutions of the very agents most commonly employed by criminals to destroy their victims. We cordially agree with Dr. Durell in his protest against this objectionable practice.

See what may happen at any time. A man with felonious purpose mixes with his wife's food small and repeated doses of an irritant poison (arsenic or corrosive sublimate). Her death ensues. The murderer summons an undertaker at once and makes terms with him to "embalm" the body; it is the proper and usual thing to do. The undertaker soon returns with his box and gets to work before the body has had even a chance to cool; he floods the thorax and abdomen with poison which, by diffusion, enters every organ and tissue of the body, recent investigations having shown that not even the brain or spinal cord escapes. So, from the moment the injections are made, the undertaker in such a case is the unheeding ally of the criminal, and the latter has placed himself in the strongest position to meet suspicion or accusation, because anatomical appearances and chemical reactions, above the line of "reasonable doubt," are not available as proof against him.

Surely it is reasonable and proper to place some legal control upon this unnecessary and objectionable practice. When the cremation of dead bodies was legalized in this State by the incorporation of an association founded for the purpose of conducting that method of disposal, it was expressly provided in the statute that in every case of cremation, a medical examiner's investigation and certificate should be the obligatory preliminary, the obvious reason being the need of preventing the destruction of the dead bodies of the victims of criminal violence. The same requirement should be in force with reference to embalming, and for similar reasons. If, however, it should be apparent that public sentiment would not sustain such a stringent regulation, it should at least be required, as Dr. Durell suggests, that a medical certificate of the cause of death should be obtained from the physician in attendance, and should be approved by the local board of health, before any embalming operation on the dead body is begun. It should not be forgotten, in this connection, that the uncontrolled use of poisons for the alleged purpose of preserving dead bodies for the two or three days before their burial, has no advantage over ice treatment except that it yields a larger profit to those who practice it.

We are advised that the Medico-Legal Society has this

matter before it. We trust that the Society's purpose to seek and obtain legislative action will not meet too much opposition from "American liberty," and will be rewarded with success.—Editorial, *Boston Med. and Surg. Journal*.

AN INTERNATIONAL LANGUAGE FOR SCIENCE.

This question has been frequently discussed, and it will probably be ventilated again at the Congress. French is the language of the diplomacy, and the French therefore urge their claim to have French chosen as the medium of communication between the learned men of different countries. We can hardly expect the Germans to accept this proposition. English has a claim for some consideration; but France and other foreign countries will put their veto upon our claim. Volapük has now a strong following, and this strange amalgamation of tongues offers itself as the solution of a difficulty. Considering the difficulties of the new language, we can hardly favor its pretensions. If we really require a special tongue for science, we should fall back upon the Latin. We have here a language with a history and a literature, and if it could be established that Latin was to be in the future the means of communication between learned men, then Latin would be taught in the schools of the world in a much more rational way than it is at present, and still more, those who intend to enter the medical profession would have to acquire a much wider acquaintance with its literature than is expressed by the first two books of Virgil or Cæsar, which represents at matriculation the acquaintance of the candidate with the *literæ humaniores*.—*Provincial Medical Journal*.

MEDICAL PHILANTHROPY.

Florence, celebrated for her organization of the "Misericordia"—a Society for the gratuitous assistance of families visited by sickness or death, the working of which so interested Her Majesty Queen Victoria during her sojourn at the Villa Palmieri—has at length supplemented that time honored institution by another called "La Guardia Permanente Medico-Chirurgica." Every Florentine citizen, male or female, whose circumstances do not admit of paid medical consultations, may now, at any hour of the day or night, by calling at or sending to the headquarters of the "Guardia," in the Via Sole, secure immediate assistance for any injury or disease from which he or she may be suffering. The one condition on which the required attendance is given is this—that the applicant shall be too indigent to be able to pay a regular practitioner. So checked, the services of the "Guardia" are in no danger of compromising the legitimate gains of the profession. On the contrary, the time of the busy, too often struggling, practitioner, is spared the calls which his humanity makes him respond to, but which in justice should be addressed to charities specially maintained for the sick poor. The assisting hospitals and the medical police service do not, it is found in Florence, suffice for cases of urgency, still less during such epidemics as that of influenza lately prevalent. Too often the surgeon's aid is wanted, when it is not available, from pressure of other claimants on him. Valuable

time is lost, and the patient dies, or drifts into a state in which intervention, however skilled, is fruitless. The *personnel* of the "Guardia" is composed, on the one hand, of consultants recruited from the flower of the faculty and of "medici attivi," also ably represented, who relieve each other for "assistenza immediata," and on the other of an administrative staff which includes the laity as well as the profession. The leading pharmacists of the city have also generously come forward to supply medicines to the "Guardia" at minimized rates. A "polyclinic" for consultation is another adjunct to the institution, and will present from week to week in regular series a selection of forms of diseases for observation and instruction. The "Guardia Permanente Medico-Chirurgica" is in short a charity, instituted for the ailing poor, for relieving the pressure on already existing hospitals and medical police service, and also for protecting the general practitioner from unremunerative calls. It has been introduced into Florence from Milan, whose rapidly increasing population suggested it, and whose wants it has met opportunely and well. Like its Milanese prototype, it has the support, not only of philanthropic citizens, but of the municipal authorities and the provincial sanitary board—bodies which in other cities besides Florence and Milan would do well to follow an example so praiseworthy.—*Lancet*.

STANLEY'S TRIBUTE TO SURGEON T. H. PARKE:

In a recent address by Mr. Stanley he said of Dr. Parke: "Surgeon T. H. Parke, A.M.D., was the latest of our volunteer officers who applied for membership in the expedition. He wrote with his own hand the terms of the agreement, the most comprehensive being 'loyal and devoted service' gratuitously. For some months he pursues his duties without attracting much notice from me; he is so quiet and unobtrusive. Finally, the increasing distresses to which we are subject increases the sick-list alarmingly. I am obliged to attend personally to the matter, which brings me more into contact with the doctor, and gives me better opportunities of observing his manner of work. Splinters pierce the feet through and through, ulcers break out like an epidemic, nostalgia creates a chronic sinking of the vital powers, hunger weakens them, dysentery saps their strength, fever enfeebles them, and various accidents occur, and each has its victims. Natives wound with arrows, knives, and spears, and before many months I find that nearly all the men pass under the doctor's hands. His patients vary from twenty to fifty in number daily; for once anæmia has firm hold of the constitutions, and the circumstances which caused the sickness remaining unaltered, except from bad to worse, the doctor's task never lessens. For months he has devoted his skill, his time, patiently and uncomplainingly, and always with a charming interest in his cases, until I have at last one hundred and twenty-four, a full one-third of the expedition, unfit for further travel. I call the doctor, and explain to him, and say, "You have done well, I admit; but I wish more yet, if possible. Take these one hundred and twenty-four, and cure them. How you will do it, I do not know; but come on once. Every hour of the day

give to them, see that their terrible wounds are dressed, that they have rations regularly, and that their food is cooked, etc. Though they were a terrible sight when I left them in his charge, in one month over eighty are in prime condition and fit for active service, and a few weeks later there are only five incurably sick." He adds that Dr. Parke twice saved Stanley's life. Dr. Parke has been awarded the Honorary Fellowship of the Royal College of Surgeons of Ireland, which has thus shown a prompt appreciation of his work. The Khedive has conferred on him the Third Class Medjidieh. The Royal Geographical Society, at the Royal Albert Hall on Monday, May 5, presented him, through the Prince of Wales, in the presence of a brilliant audience, with a medal which had been struck in honor of the services rendered to the cause of science and humanity; and the British Medical Association will present him with their gold medal for distinguished merit.—*Medical Record*.

SANITARY CONDITION OF TEHERAN.

In his memorandum on the last cholera epidemic in Mesopotamia and Persia, as quoted in the *British Medical Journal*, Dr. N. Daniloff, physician to the Russian mission at Teheran, says that the Persian Capital will suffer greatly from cholera in case of the disease breaking out in its population, which numbers about 100,000. The centre of the town is occupied by a bazaar with a number of eating houses and coffee shops. Every species of offal, excrement, etc., is deposited there. Carcasses of horses, dogs, and other animals, are simply thrown out on the streets. The chief danger, however, lies in the water-supply. The town receives its water from mills situated a few miles away. "The place abounds," Dr. Daniloff says, in "reservoirs and wells which are nothing but holes leading straight down into the aqueducts, and lying on a level with the ground, without being protected by any fences or frameworks. Here the inhabitants perform their ritual ablutions, wash their linen, and use the same water for drinking purposes."

About the end of 1889, when the epidemic was raging in Persia, the Emin-Sultan, "the first personage after His Majesty the Shah, in the country, invited local European doctors to advise what could be done to protect the capital from the epidemic. They unanimously declared that, before everything, the sanitary condition of the town, and especially the water-supply, should be radically improved, and they indicated how this might be done. But as the reforms suggested would have involved considerable expense, the Persian Government preferred to leave things as they were."—*Boston Medical and Surgical Journal*.

ROOSEVELT HOSPITAL, OPERATING THEATRE.

The legal difficulty concerning the will of Mr. Symms, providing for the erection of an operating theatre upon the grounds of the Roosevelt Hospital, has been compromised so that the work upon said building will soon be resumed. A gynecological operating pavilion is also in process of erection. The money therefor has been subscribed by a friend of Roosevelt Hospital.

PRACTICAL NOTES.

ON THE ACTION OF SULPHONAL.

In the *Therapeutische Monatshefte* for March, Dr. Franz, of Breslau, says: Pertinently to the researches of Dr. Knoblauch concerning the effect of sulphonal in diseases of the mind (*Therap. Monatsh.*, 1889, page 495), I may briefly relate here my own experiments upon the operation of sulphonal in surgical diseases. I have administered sulphonal Bayer to eighty-two patients, in about 260 doses, and from these experiments, which were made to learn what injurious collateral effects sulphonal might have, have reached very favorable conclusions. In the cases in which only an agrypnia nervosa had to be dealt with, comprising twenty-six patients and eighty-six doses, sulphonal failed me only four times, and those all with the same patient. This patient was very anæmic, had pulmonary phthisis, and had been operated upon several times for tubercular abscess. The patient declared, besides, that he could not sleep without morphine. In all the other cases the patients slept very well after sulphonal; and the sleep was, according to their representations, beneficial and refreshing. In no case had the patients any trouble from sulphonal; they did not complain of dizziness, or staggering, or headache, nor did any ataxic symptoms appear. Only the single patient (a morphine-taker), already mentioned, once had, after a dose of 3 grams of sulphonal, somewhat marked delirium; otherwise he had no trouble. In one case we succeeded in weaning a moderate morphinomaniac from his habit by sulphonal. The maximum dose was in most cases one gram. Somewhat larger doses had to be taken by patients who were suffering pain from wounds or other causes; with them a dose of two grams was sufficient to produce in a short time healthful sleep. Only in five cases did sulphonal fail to remove violent pains, and then, indeed, in doses of only a gram. In one case the pains of a violent supra-orbital neuralgia (following a phlegmon of the left half of the face) ceased after the administration of a gram of sulphonal; with another patient toothache disappeared after giving sulphonal. In all these cases no headache, dizziness, ataxia, or other collateral symptom appeared.

Sulphonal also agreed well with all patients when given immediately after narcosis with chloroform. The pains, headaches, and vomitings that accompany the narcosis were not increased by it. No inconveniences followed the sulphonal; the numbness and the heaviness of the head after chloroform were in no case increased, but in many cases ceased. Sleep during the night following the operation was relatively not so good as in the other cases; but only three

of the patients were unable to sleep; in the other cases the sleep was light and sometimes broken, but was otherwise generally good. Several patients averred that they slept better after sulphonal than after morphine, which was given them alternately with it.

Sulphonal had a marked effect with children, to whom it was given in seventeen cases in doses of from 5 to 8 centigrams. Sound sleep soon came on, without any unfavorable symptoms being induced.

When did the effect of sulphonal appear? I must first remark that no patient who took sulphonal between 2 and 4 o'clock in the afternoon slept during the day, or till evening. In the other cases sulphonal was given between 6 and 8 o'clock in the evening, and sleep came on in the case of patients with agrypnia nervosa in the course of an hour, while with those who had violent pains or were still under the influence of chloroform, it generally held off somewhat longer. In a few cases a sound and healthy sleep did not set in till toward morning. I should mention that the sulphonal in all the experiments was given in wafers, so that the difficult solubility of the sulphonal may be responsible for the delay in the patients' going to sleep.—*N. Y. Med. Journ.*

TREATMENT OF SOFT CHANCRES (CHANCROIDS).

The striking results obtained by Winckel with liquor ferri sesquichloridum in puerperal ulcers induced Letzel (*Allg. Med. Cent. Zeitung*, 1890,) to try it on soft chancres. After the ulcer has been painted with the solution for four days, a bright granulating surface results, which is then treated with calomel, and usually heals in five days. The pain caused by the application very seldom calls for cocaine previously.—*Virg. Med. Mon.*

WHEN IS A CHILD VIABLE.

It is usually stated that children born before the seventh lunar month are incapable of living, and Voit mentions 1,500 grms., or 47 oz., as being the minimum weight of a viable child. Exceptions, however, occasionally occur. One such has recently been reported by Dr. Holowko, assistant physician in the Dorpat Obstetric Clinic. A female child was born in the twenty-seventh week, and weighed only 1,300 grms., or 31 oz. Though it had to be subjected to Schultze's swinging movements in order to get it to breathe, it was ultimately brought into very good condition, and after a time attained the weight it would have done had it remained in utero its full time. It was kept in a kind of *couveruse*, and fed by a wet nurse, and with milk diluted with four parts of water. Dr. Holowko thinks that the formation of the chest and general muscular development are of more importance for prognosis in such cases than the body weight.—*Lancet*.

SOCIETY PROCEEDINGS.

American Medical Editors' Association.

*Annual Meeting, held in Nashville, Tenn.,
May 19, 1890.*

I. N. LOVE, M.D., OF ST. LOUIS, PRESIDENT.

PRESIDENT'S ADDRESS.

Fellow Editors.—It is needless for me to attempt to express my appreciation of your having chosen me to preside over your honorable body.

An organization which includes in its membership the editorial representatives of the leading medical journals of America is one over which any man might feel proud to preside, even though conscious of the fact that the kindly regard of cordial friends had more to do with his selection than special fitness, or marked editorial ability.

I shall not weary you with a lengthy address, as there are numerous papers to follow which will prove more interesting, but have decided to throw out, not in an advisory way, but merely as suggestions, a few points which I trust will not prove completely stale and unprofitable.

It would be more interesting than gainful for me to present to you a history of the progress of medical journalism from 1686, the year which gave birth to the first medical journal, down to the present day. I am safe in saying that medical journalism has kept pace with the advancement in other directions.

The printed sheets, published at stated intervals, devoted chiefly to intelligence on current events, under the name of newspapers, appearing first in the early part of the seventeenth century, were mostly in the form of weekly news letters, which only the aristocracy could afford; but from this small beginning has been evolved the mammoth metropolitan daily journal, appearing once or twice, or half a dozen times a day, selling for a song, purchased by the millions, and he who runs may read what happens from one end of the world to the other.

Has the medical journal followed the pace set by the secular press? I will answer "Yes" and "No." However, taken in their entirety and completeness, I believe the medical journals of the world may be credited with having kept in line with the progress of the journalistic procession.

The current advances of the profession, the achievement of the medical world's best workers, have been faithfully recorded and promptly presented. The negative side of the question confronts us when we consider whether the medical journalist has, like his brother of the secular press, kept his fingers upon the pulse of those he serves.

Has he properly considered their tastes, their capacities? has he sufficiently mingled with the

masses who he has been desirous of feeding? In general has he not been inclined, like the Pythian priest in the temple of Apollo, to sit upon his tripod—with his tripod upon stilts—deeming himself and his views even more thoroughly oracular than the Delphic one of old?

In secular affairs the procession moves so rapidly that the journalistic music must be made appropriately fast, just as fast as possible within the limits of harmonical sound, and even then a discordant note is occasionally heard.

The actions of men, the affairs of commerce, the ups and downs of the world at large must be known by the reading masses before entering upon the various duties of the day. But science, hygiene, sanitation and the dreary routine of the doctor's life, the needs of humanity, the interests involved, demand careful thought and are in the aggregate against the too frequent appearance of the medical journal. The daily medical journal, in spite of the fact that the medical world is moving more rapidly than ever before in the history of the world, would be, in the nature of things, an absurdity.

Thoughts, suggestions and discoveries are coming in rapid array, but in view of the fact that they pertain to the most serious of all earthly affairs, they must be weighed in the balance and found worthy, and not sky-rocketed upon the medical horizon like the sensational gossip of the daily press which gives zest to the morning meal.

At this point the query presents itself: How often should the medical journal make its appearance? I answer—just as often as its equipment may enable it to present well digested facts in good form for ready assimilation by its readers—bearing in mind that the doctor's life is a monotonous round of drudgery in the majority of cases nine months out of the year, his "day's work" being never done.

On the "go" from sixteen to eighteen of the twenty-four hours, the doctor, if he receives a journal too often, will see and read about one in four copies—the other three will remain in their wrappers.

He who sits in his sanctum delving in science, looking through the small end of a microscope (seeing things which to the average eye are an unopened book), who daily walks in the valley and the shadow as well as on the mountain top of science, may well feel that the ideal medical journal should deal in nothing but cold facts; should be severely and serenely scientific; that if it is anything else than this, anything else than learned and logical, strong and heroic, heavy with the accumulation of thoughts thrown out by theoretical authorities, it is undignified and unscientific.

They who are able to grasp such a journal are the upper "four hundred" of the profession, who have not a thought beyond that which is

perfect, and are learnedly angelic, but when it comes to presenting this Saturnine production to the masses of the profession, it will prove more than likely a cold dish.

Not that they are not qualified to appreciate it, but that they are too busy. They are practical workers. Many of them, as I said before, are either in the saddle or the sulky, in the buggy or the brougham, behind one or more of man's most faithful slaves, sixteen or eighteen of the twenty-four hours, engaged in an effort to relieve suffering humanity. Four nights out of five they are unable to sleep in their own homes, and hardly have sufficient time to become acquainted with the individual members of their own families.

They are all anxious to keep up with the procession of the sciences; ready to pick up crumbs of knowledge and information wherever available, but certainly in no humor to grasp one of the ideally perfect journals and wade through long, learned and labored theses, turned out after months of work by the scientifically pluperfect.

These practical workers, these slaves to a horde of suffering tyrants want meat and drink, nutrition and stimulation which are available, and which they can pick up by the wayside by fits and starts.

In my judgment the best journal is one that can present a fair epitome of the results achieved by the bacteriological, chemical, anatomical, physiological, pathological and clinical workers; in fact, I think that the best journal is the one which furnishes matter within the scope of all, on the principle that he does the most good who does the greatest good to the greatest number.

Of course there can be no doubt that the special journal, heavy with science, comes within the reach of only a few, and those who conduct it should not feel that it is any better because more exclusive than the more varied, practical, democratic and generally useful journal which caters to a larger number.

I feel that every worker in the medical field should be induced to contribute his mite to the fund of knowledge. There are those who have been long out of the scholastic groove, working as slaves in the ranks of experience. The habit of jotting down their thoughts and ideas has long been broken. If called upon to contribute an article for a journal the product, viewed from the standpoint of the schools, might fall far short of perfection; but that it would be of value cannot be denied. We often hear the announcement made by medical men that they will never write except when they have something absolutely original. We must remember that it is only by knowing the views and work of other men that we accomplish the crystallization of our own views. It is well to bear in mind too that the good and the true will bear repetition and are seldom strikingly new.

What we want is the recorded observations of workers in the medical field. Men who hibernate in their closets and indulge in day dreams may evolve, by means of the proper equipment for scientific investigations, that which is of value, but the practical worker can apply these deductions and test them in the severe school of experience, and we need just such evidence as these practical workers can give.

I claim too that a medical journal should be constantly on the lookout to present all that is of interest to the medical guild, ever alert to advance its material good, striving in the direction of the complete organization of its members.

OFFICIAL ORGANS.

Under the existing conditions of medical journalism in America, I am strong in the conviction that there is no justification for any medical body possessing itself of an official organ, save and except the American Medical Association.

In the nature of things it is proper that the National representative body of the profession should be officially represented by a journal. And it should be the duty of that journal to work in harmony with the various medical journals of America. It is fortunate for the American Medical Association that its official organ has been in such good hands. Regarding journals which serve in the capacity of organs to State, district and county societies, medical colleges, instrument houses, publication houses, proprietary medicines, etc., I am of the opinion, not that they lag superfluous on the stage, but that their influence and usefulness can be but limited.

However, I am firm in the belief that these and all other medical journals, so long as they spread knowledge, are productive of good. We often hear the statement that there are too many medical journals; but it is no more true than is the statement that there are too many doctors, or workers in other fields. As long as good work is done, and the governing thought in the worker is the accomplishment of the general good, there cannot be too many workers, either in journalism or any other field. The inexorable law of the survival of the fittest will obtain and solve the problem here as elsewhere.

I have thought for several years that this National Association of Medical Editors, meeting as it does the evening preceding the first day's session of the American Medical Association, should extend its work to the degree of having a session of one or two hours—say from 8 to 10 A.M.—each day that the American Medical Association is convened. By having the several sessions the members would be brought together oftener and more intimately, and many things of interest to our craft could be carefully considered, and conclusions reached which would have a far-reaching effect upon the journals and the profession.

I would not presume to advise this body, and yet I cannot refrain from announcing as my belief that every medical editor in America who is loyal to the best interests of the profession and himself will not only attend the annual meeting of the American Medical Editors' Association, but will never fail to be present at the meetings of the American Medical Association, and urge the profession of the entire Union to join and attend this grand representative body.

Let us never lose sight of the fact that the Editor who mingles most with Doctors is the best qualified to know their needs.

Let us not as Medical Journalists throw overboard from our vessels the ballast of sound, judicious "Conservatism," a discrete to present solid scientific sustenance to our subscribers, but may we not take the cue from the daily press to the extent of giving a proper variety to our patrons? Let us try to lead our professional brethren in the correct directions, but may we not occasionally, in fact frequently, follow their leadership?

Let us bear in mind the many carking cares constantly crowding into the Doctor's life, and while we strive to present entire loaves of solid scientific food let us ever and anon throw in all the crumbs of comfort we can.

Let us remember that a little wit, gayety and even nonsense now and then are relished by the best of men.

Charles Dudley Warner recently remarked "It is better to be dead than dull." Let us try to be neither dead nor dull, but let us be saturated with a desire to improve, advance and inspire our readers with a determination to do the best work in their power for humanity and the profession. Let us strive to make the uppermost thoughts of our editorial lives those connected with science, humanity, charity, business thrift, brotherly kindness and cheerfulness.

Allegheny County Medical Society.

Special Meeting, February 19, 1890.

W. S. FOSTER, M.D., PRESIDENT, IN
THE CHAIR.

TRACHEOTOMY FOR FOREIGN BODY.

DR. MURDOCH: A little boy was brought to the West Pennsylvania Hospital recently, who five days before was lying on his back with a grain of corn in his mouth; he took a violent paroxysm of laughter, suddenly gave a very long inspiration and immediately was seized with a paroxysm of coughing and strangling. The parents, who knew that the boy had the corn in his mouth, surmised it had gone "the wrong way" and into his windpipe, and commenced, as is customary with people in such cases, to slap

him on his back, and, not succeeding in relieving his paroxysms of coughing, they sought assistance from their family physician, who came and gave the child an emetic; the child vomited profusely, but was not relieved. He continued to cough, had violent paroxysms that night and all the following day, and then still further relief was sought, and every effort was made to dislodge this grain of corn from the windpipe. The child was inverted, shaken and slapped violently on the back; still other emetics were given but no relief came, and the father brought the little fellow to the hospital. He then presented every appearance of suffering from oedema of the lungs. The skin of the face was livid. He was evidently in great distress, breathing with considerable difficulty, and every few moments he would be taken with violent paroxysms of coughing. On examination of his chest I was unable to detect any abnormality in either lung by auscultation or percussion. But from the history of the case, and from the other symptoms, I thought we were warranted in opening the windpipe. Before putting the child under an anæsthetic I inverted him and shook him, but the corn was not dislodged from its position. He was then anæsthetized with chloroform, and that procedure was repeated without good effect. An incision was then made into the trachea; the second, third and fourth rings of the trachea were divided, and when the forceps were introduced into the trachea, the child gave a violent inspiration and then a violent expiration, and at once the corn came up from below and appeared at the opening. I made an effort to grasp it with the forceps, but failed, and it went back into the trachea. Then by introducing a pair of narrow-bladed forceps to try to get the corn, the irritation of the forceps seemed to excite another paroxysm of coughing; the boy made another inspiration and after it an expiration, and the corn was thrown away across the room, lodging some eight or ten feet from the boy. It was picked up and found to be a very large grain. It must have been three-fourths of an inch in length by half an inch wide and a fourth of an inch thick, and it was in a swollen condition, and evidently had it remained much longer in the boy, it would have commenced to germinate. The case demonstrates the value of the operation of tracheotomy. I believe that if this body had been larger and more spherical, it would have probably lodged in the larynx. That is the usual way children choke. If it is a spherical body, or a body like a piece of meat, it will be impacted in the larynx, and unless the child is relieved at once he necessarily perishes. When the body is angular, as a grain of corn, if lodged in the larynx, sufficient air can pass to sustain life. In all cases we are not so successful as I was in this one. Frequently, when the windpipe is opened, the surgeon is unable to get

the foreign body. It may be impacted in one of the bronchial tubes, and even if it does not escape at the time of the operation, the chances of its escaping from an opening in the trachea are much greater than they would be for it to escape through the larynx.

DEAFNESS WITHOUT APPARENT LESION.

DR. ALLYN: A man in a mill was assisting a man much larger than himself at a roll; a link of a chain swung around and struck the larger man, breaking his nose and crushing his face, but simply pushing the smaller man to one side. This man showed no symptoms of prostration and presented all the appearances of being uninjured with the one exception that, as he was taken up, he was absolutely deaf to all noises. Going over all the points, I failed to elicit one point further than the fact that he could not hear. He had no aphasia, there was no paralysis of any of the muscles of the body, of the eyes or face. There was no paralysis of taste. The ear-drums were intact, the membrane being perfectly translucent and of the proper color, and no hæmorrhage known in the case at any time. It possesses the simple fact of there being absolute deafness in both ears, caused by merely being knocked over and falling on the side of the head, I do not know what progress the case will make; it is of recent origin.

TREATMENT OF COMPOUND FRACTURES INVOLVING JOINTS.

DR. McCANN: I would like to talk about the treatment of compound fractures involving the joints, such as are attended by more or less destruction, not only of the bony tissues, but also of the soft parts in the vicinity of the injury. Such injuries result commonly, as they have fallen under my observation, from two causes: first, accidents which happen to brakemen in coupling cars in which the elbow is caught between the "drawheads" or "deadwoods" of a pair of cars. In putting in the link to make the coupling or in attempting to drop the pin, the elbow is caught directly between either the drawheads or the deadwoods. The result of this is an extensive fracture involving the elbow joint, with extensive laceration and bruising, of the soft tissues.

The second form of accident is that which involves the ankle joint, and in which the foot is caught either beneath the wheel or pinched by the brake-block. In one case, still under my care, the man fell between the trucks, his foot falling so that not the crown of the wheel but the flange passed across the outer and dorsal surface of the foot opening the ankle joint but not cutting through the tendo Achillis, though tearing the skin as far as the inner edge of that tendon. In another case, the accident involved the limb a little higher up, also opening the joint and crushing the

astragalus. In the past, efforts to save such limbs, usually resulted in a secondary amputation or in the death of the patient. The method of treatment is certainly a very important element in the history of these cases. Under the old régime the treatment usually adopted consisted of a sort of perfunctory cleansing of the wound, the application of carbolized oil or carbolic solution; the limb was placed in the position deemed most favorable in the eyes of the surgeon, and the reparative powers of nature were trusted to either cure the foot or demonstrate the utter impossibility of saving it if the patient did not die in the effort to find out whether or not his foot should be cut off. Within the past few years this has been modified, and the practice now (and I presume it is so all over the world), is to be guided by the extent of the injury. If the blood vessels and nerves are not involved, even if the bones be extensively crushed, an effort should be made to save the part, and this effort is comparatively simple, or rather the principles upon which it should be carried out are simple. First, cleanse the wound thoroughly, remove everything, fragments of bone, of devitalized skin, of wood or iron, everything foreign or liable to be septic. Then the limb should be thoroughly dressed antiseptically after being carefully washed in some solution, and the one I resort to is bichloride of mercury 1 to 1,000 or 1 to 2,000; the limb is then carefully put up in an antiseptic dressing, carefully but loosely applied so as not to constrict but to protect the wound. If there is any tendency for the tissues to fall into such a shape that there will be pockets, I have no hesitancy in making counter openings and introducing whatever number of drainage tubes may be necessary to secure proper discharge for the wound secretions. Now, having done this, the limb is placed on a splint, care being taken that there is no constriction of any part, that there is no tight bandage, no application which can in any way interfere with the arterial circulation or obstruct the return of venous circulation. The limb is elevated so as to favor the return circulation, and then dry heat is applied externally to all the dressings. The first dressings should be of sublimated or iodoformed gauze; borated or carbolated cotton is also applied to simply protect the wound by placing around it a sufficient amount of absorbent material, to exert a very moderate degree of elastic compression and to prevent constriction. Now, under this treatment you will either discover at the end of twenty-four hours that your limb is saved or is absolutely lost, and in the meantime you have protected your patient in the event of gangrene attacking the limb as a result of the traumatism. You have protected your patient against sepsis; and even if gangrene does occur, it does not spread with the rapidity it in-

variably assumes when the wound becomes septic. You have nothing to fear from the occurrence of that acute, spreading gangrene, the "gangrene of inflammatory sepsis" which has been the curse of surgery in the past. Usually at the end of twenty-four hours the first dressing should be changed, and it has been my habit to again cleanse the wound thoroughly to pass a stream of some antiseptic fluid, usually the 1-2000 bichloride solution through the drainage tubes. Usually you will find one or two of them filled with coagulated blood. This should be removed, and if the opening is large enough it need not be replaced. The second dressing should be applied just as the first. After this second dressing, it is usually unnecessary to replace the dressing for seventy-two hours or longer. A finger or toe should always be left uncovered, by which you can ascertain the condition of the extremities. If the toes or fingers continue warm when you expose them, and the capillary circulation perfect, you have nothing to fear. Now under this treatment, if infection does not occur, the wound surfaces are not irritated by septic material. Suppuration does not occur. The discharges which flow from the wound are trifling in amount. The wound itself is comparatively painless. If there be dead portions, and usually there are, dead fragments of bone, dead shreds of skin or of bruised muscle remaining in the wound, of course they are foreign bodies; but the process of separation between the dead portion and the living goes on kindly and without suppuration. Without going further into the details of treatment, I may state that this plan should be carried on until the whole surface of the wound is cicatrized. The dressing does not require changing more than once in four or five days. Now to close this matter, I may state that of all the cases I have treated, five have involved the ankle joint, two of them were complicated by fractures of leg bones, one of them with the splitting of the tibia for eight inches. In all, the joint was widely laid open, extensive damage had been inflicted upon the bones with great laceration and contusion of the foot and of the tissues around the ankle. In another instance, one in which the foot was caught under the flange of the wheel by the patient falling between the trucks, the flange traveled up along the outer surface of the foot opening the ankle joint, crushing through the bones of the foot so that when the stitches which had been injudiciously applied were cut, the crushed portion of the foot dropped apart.

Now under the method of treatment which I have advocated, thorough antiseptic cleaning, thorough draining, the use of loosely but thoroughly applied antiseptic dressings, this foot has been saved, and the man will soon be able to walk upon it.

DR. BUCHANAN: I think the Society is under an obligation to Dr. McCann for the practical and excellent manner in which he has laid down the rules for the treatment of these injuries. I believe the general principles he has enunciated are the accepted ideas on the subject, and they are very well established to-day; and for that reason I think we are disposed to take for granted that because Dr. McCann and certain other men who see a very great amount of railroad and other surgery, do adopt these rules of conduct, their adoption is universal. I think this is a mistake, and I think we can very profitably stop and repeat these rules as Dr. McCann has done for us this evening. The most unexpected results, I think, can frequently be achieved by careful, systematic and methodical repair of injuries. I exhibited to this Society some time ago a case of complete excision of the ankle with excellent motion, in which there had been extensive laceration and crushing of the joint. Since that time I have attended another case in which the ankle, and indeed the whole posterior and middle part of the foot, were so crushed that I hardly felt justified in asking the man to allow me to attempt to save it, but the man was urgent in his desire and would not permit the subject of amputation to be discussed; he knew the foot could be saved, and he gave me no option in the matter, and somewhat against my judgment I excised the ankle-joint, put the foot together, and the result is that to-day the man walks very well with a cane, and will soon dispense with it. The astragalus, a portion of the os calcis, the lower extremities of the leg bones, and some pieces of the other tarsal bones, were lost. The lower end of the tibia was wired to the lower part of os calcis, and the soft parts of the foot were stitched together and dressed, as Dr. McCann has so well described. The patient recovered without a bad symptom. The wire was removed some weeks afterward.

(To be concluded.)

FOREIGN CORRESPONDENCE.

LETTER FROM PARIS.

(FROM OUR REGULAR CORRESPONDENT.)

One of the Causes of non-success observed after Laparotomy performed for Internal Strangulation—Treatment of the Congestive states of the Brain—Autographism—Cure of a Case of Traumatic Tetanus—Chloroform Vapor as an Antiseptic.

In a communication made by Dr. Duret to the Congress of French Surgery on the utility of washing out the stomach in the cases of laparotomy for internal strangulation, the author point-

ed out that as a principle, one of the causes of non-success observed after laparotomy performed for internal strangulation, was the defect of intestinal antiseptics. The septic liquids of the digestive tube transude into the peritoneum. In support of the preceding doctrine, the author communicated the following case: A man, æt. 57 years, presenting all the signs of internal strangulation, such as fæcaloid vomiting, meteorism and hypothermia. The strangulation had commenced four days previously, and futile attempts had been made to overcome it by purgatives, rectal douches, and electrization. Laparotomy was then performed. The intestine was red, the peritoneum contained a grayish fluid. Whilst explorations in the abdominal cavity were being practiced, the strangulation was removed. This latter was due to a cord-like substance situated in the neighborhood of the cæcum. The cord was cut, and the result of the operation was only slightly favorable, the temperature was low, amounting to algidity. On the third day, the fæcaloid vomiting persisted. Washing of the stomach was then resorted to, which caused the evacuation of a blackish liquid, of a very pronounced fæcaloid odor. From that time, the cure was promptly effected. Dr. Duret would recommend, in similar cases, the washing of the stomach before operation, as this expedient often suffices to overcome the internal strangulation. In any case, it renders chloroformization more favorable, if this is necessary to perform laparotomy. It diminishes the meteorism that which facilitates, during the intra-abdominal manœuvres, the search for the agent of the strangulation. Consecutively to the operation, the washing of the stomach prevents auto-infection, that is to say, the invasion by germs of the intestines, the peritoneal cavity and the rest of the economy.

At a recent meeting of the Société de Thérapeutique, Dr. Huchard read a note on the treatment of the congestive states of the brain. According to the author, the following is the treatment to be pursued in persons who have congestive phenomena giving rise to the fear later on of an active congestion or of a cerebral hæmorrhage. Besides general hygiene, the iodides should, above all other medication, be prescribed. Immediately after the occurrence of hæmorrhage, ergotinine in subcutaneous injections, which has the property of exciting vaso-constriction. Also, in sclerosis in patches and in general paralysis, when apoplectiform attacks supervene, as well as in true old apoplectics, when congestive attacks supervene. The following is the formula for injections: Ergotinine, 1 centigram; lactic acid, 2 centigrams; cherry laurel water, 10 grams. From one to four injections per day, each syringe containing 1 milligram of ergotinine.

At a recent meeting of the Academy of Medicine, Dr. Mesnet, Hospital Physician, presented

a young woman offering a curious example of what he described under the name of autographism. If one trace very lightly on the skin of this patient with the point of a pencil any signs or characters whatever, the skin so marked becomes rapidly raised and forms a relief which can be distinguished at a distance of 20 metres, reproducing exactly the letters or figures that had been traced on it. Dr. Mesnet based his work on four cases which presented themselves identically in his hospital practice. They were evidently hysterical subjects, or in women with weak minds. The tracings on the skin were visible whether it was in an anæsthetic condition or not, and the same phenomenon was produced constantly in the four women. The author therefore concludes that autographism is a reflex act. He considers that it is not a transitory and ephemeral act, for he has had these patients under his observation for the last ten, six, four and two years, and the autographism still exists. Autographism, the author observes, cannot be confounded with the meningitic and typhoid tracings on the skin. Urticaria appears to belong to the same nosological group, but what differentiates autographism from urticaria is that it is independent to any diathesis, and appears to have hysterical nervosism for predisposing cause. It is met only in hysterical subjects but, on the other hand, is a very rare phenomenon of hysteria. These patients are easily hypnotizable.

Cures of cases from tetanus are so extremely rare, that Professor Villemin considered the following case sufficiently interesting to be communicated to the Academy. It refers to a case of traumatic tetanus under the care of Drs. Solles and Fromaget, of Bordeaux, and which ended in a cure. The indications of treatment are, according to the authors, to exaggerate to the maximum the work of the elimination of the microbial excreta by the skin and the mucous membranes, and to direct remedies against the tetanic contractures and against the pain. To fulfil the first of these indications, the authors recommend the administration of purgatives, subcutaneous injections of pilocarpine and vapor baths. The second indication should be fulfilled in administering chloral against the contractures, and morphine and the bromide of potassium against the pain.

Dr. Desprez, of Saint Quentin, vaunts as antiseptics the inhalations of chloroform, under the form of vapors obtained by slightly heating a saturated solution of water and chloroform, that is, about 2 grams of chloroform to 100 of water. The author adds a little of this solution to tea, coffee or wine, and affirms that he obtained the best results in cases of grippe, coryza, and bronchial catarrh.

A. B.

DOMESTIC CORRESPONDENCE.

Dry Method of Treating Wounds.

To the Editor:—From reading the address of the Chairman of the Section on Surgery at the late meeting of the Association, one is at a loss to know whether Dr. Logan was not aware of what had been written on the "Dry Method of Treatment of Wounds," previous to the address of Dr. Landerer, before the German Congress of Surgeons; or whether the matter was presented by him, in a clearer and more convincing light, in view of the growing general distrust of Listerism, in all its details, by the profession arriving at the conclusion that the benefits are summed up in cleanliness, and the practically dry and infrequent dressing of wounds. But, be it as it may, no credit is given the advocates of dry treatment, in this country or in England, although cases reported might have been as convincing as any contained in Dr. Landerer's address.

On February, 8, 1879, I published a brief paper in the *Cincinnati Lancet-Clinic*, on the "Treatment of Wounds," in which this sentence occurs: "I have no doubt that much of the success of Lister's method is due to fulfilling of these very indications—*keeping dry, protecting, and disturbing as seldom as possible*. Heat and moisture are the most favorable conditions for decomposition. The dressings cannot be retained half so long where water is applied—the plastic material is diluted and washed off, repair is retarded, increased inflammatory action results." At that time I was not aware that any surgeon, in this or any other country, advocated this treatment; it was contrary to the teaching of authorities; but I had been gradually adopting it for several years, and though eminently satisfactory, I was somewhat restrained by my friends. It was with gratification and pleasure that I shortly afterward saw, in the London *Lancet*, an article, published on the same day as my paper, by the distinguished Surgeon to Queen's Hospital, Birmingham, Mr. Sampson Gamgee, on the subject. He afterward sent me a copy of his work on "Treatment of Wounds," of which I had never heard, and which deserves the careful perusal of every surgeon. Mr. Gamgee says (p. 2): "Lecturing here in 1867, I told you I looked upon water dressings as not much better than a poultice, as favoring suppuration, and opposed to healing. Experience has only added confirmation to this opinion; and it is now many years since I applied water dressing, or a poultice, to a wound I wished to heal. Yet Mr. Erichsen, in the last edition of his works, seems scarcely less fond of water dressing than (following immediately in Robert Liston's steps) he was, when Joseph Lister and myself acted as his earliest dressers, now seven and twenty years ago."

Here were two surgical dressers of Mr. Erich-

sen, seeking better results in wound treatment, and a careful examination of cases reported, will not show more gratifying results from Listerism, than from Mr. Gamgee's method; yet results, personally, to the two men, were widely different. Mr. Lister was knighted for his achievements, and antiseptics became a household word all over the civilized world; while the dry method is only beginning to be appreciated by a few surgeons, and Mr. Gamgee's name, as connected with it, seems to be almost unknown. Yet of the former's method I might almost say, "one by one the myths have faded from the clouds; one by one the phantom host has disappeared; one by one facts, truths and realities have taken their places." The spray has disappeared, and the instrument maker is left with the expensive apparatus for its generation on his hands; carbolic acid gave way to the sublimate, hydro-naphthol, etc.; and the last heard from Sir Joseph, he was experimenting with the cyanides to supplant those mentioned.

If microorganisms were the cause of the unfavorable results of wounds, it has long since been demonstrated that any of the so-called germicides, to be efficient, would likewise destroy the patient. Billroth says (*Canada Lancet*): "Corrosive sublimate, in dilute solutions, is practically inert as an antiseptic to wounds, and renders patient and surgeon alike liable to mercurial poisoning. Carbolic acid, which is known to be dangerous in strong solutions, is, in very weak ones, as good for wound irrigation as clean water, but probably no better." A writer to the *Medical Press and Circular* (copied in the *Cincinnati Lancet-Clinic*, January 7, 1888) says: "It is difficult for surgeons, and others who have been reared in an atmosphere heavily charged with antiseptics, to entertain the idea that antiseptics, whether in spray, powder or solution, may be only a fashion, a whim, in fact, an ephemeral current of thought . . . and our pet theories may, by and by, fade away into the gloom of oblivion, to be alluded to only as archaeological curiosities . . . The more one looks into the subject, the more is one disposed to question the value of antiseptics *per se*."

When I wrote my first paper, I was told I would live long enough to regret it. It was almost criminal to doubt. And yet Bourgeon's method and Brown-Séquard's elixir are numbered with the things that were. Infidelity has done much to advance Christianity, and likewise medicine. Turn as they may, seek where they will for something to break the fall, that part of Listerism will go down, while that for which the author deserves all the credit he has received, which has revolutionized surgery, scrupulous cleanliness and practically dry dressings, will stand for all time. Mr. Gamgee says (p. 8): "In neither case was the dressing touched for several days. I attach much importance to the dry dressings. The sponges

were squeezed out of clean water; not a drop of water was afterward allowed to touch the wound. Drenching wounds with water during an operation, and washing them with it afterwards, are mistakes. Water favors decomposition, which is an enemy of healing action," almost the words I had used, above quoted. I had reasoned that if there were inimical germs in the air, there were likely to be worse in the water, the former being nature's purifying agent.

C. B. MILLER, M.D.

312 Fifth Ave., Helena, Mont.

Reform of Medical Education.

To the Editor:—I have read with great pleasure the presidential address of Dr. E. M. Moore, in which he advocates a Department of Public Health for this country, as well as the very concise letter of Dr. John B. Roberts, in the same issue of THE JOURNAL, on the Conference of Medical College Delegates. I was particularly interested in Dr. Moore's address, because in an editorial in THE JOURNAL of January 21, 1888, I wrote in favor of a Department of Public Health, and so far as I know such a suggestion had not been made before.

I was surprised, however, that Dr. Moore did not refer to the need of such a department of the government for regulating medical education and practice in the United States. Surely it is quite as important, from the standpoint of public welfare, that our medical men should be properly educated, and that quackery and bogus colleges should be exterminated, as that our foods should be kept pure, our malarial swamps drained, and other sanitary measures be taken. And while Dr. Roberts was correct in his interpretation of the moral responsibility of the schools, the history of medical education in this country shows plainly enough that some of the schools, having no souls to save, know nothing of morals nor of moral responsibility. With a very few and notable exceptions the schools that have raised their standard have done so through fear of having their graduates refused licenses by State boards of health, notably the Illinois Board.

Furthermore, the past two years have seen a marked increase in the illegitimate birth-rate of medical colleges in this country. There may be some inscrutable wisdom in the "founding" of new medical colleges in this country, but it is that species of wisdom that, for the present at least, passeth all understanding. With enough medical colleges to educate physicians for 200,000,000 people, it certainly seems that the mills for making new colleges should be shut down, especially since the surplus of doctors is far greater than our "home market" demand, and we can neither export nor pay pensions with the ever increasing surplus. It certainly seems that

something should be done before there is a medical college in every postoffice and the signs of half educated "doctors" hang over the edges of the country like a fringe.

In October, 1889, I proposed federal regulation of medical education and practice in the *North American Review*. The proposition was violently opposed, but only, so far as I know, by some professors in lower-class colleges, and these would be expected to oppose a measure that would compel them to raise their standard. They know well enough that they are putting "one pound" labels on one-half and three-quarter pound graduates, but they don't wish to be compelled to give full measure. That is human nature, which cannot be changed easily after the age of puberty.

The history of medical education and legislation in this country gives us no reason for hoping either for voluntary reform on the part of the low-class colleges, or for a uniform standing on account of State regulations. The only hope lies in the people's awakening to their needs, taking the matter into their own sovereign hands in the federal government, and making the American degree mean something, instead of being a reproach among civilized peoples.

WILLIAM G. EGGLESTON.

204 Cass street, Chicago.

ASSOCIATION NEWS.

The Jenner Centennial Committee.

Committee appointed under the resolution to the effect that the American Medical Association should take proper notice of the coming Centennial of Jenner's discovery of vaccination, and to report a practical scheme which shall bring the century of vaccination in America under review, and in such study secure the expression and co-operation of the medical profession in every part of the country, old and new, as to its great beneficence, and report such recommendations as to scope and method to accomplish the purposed end in view:

Dr. J. M. Toner, Washington, D. C., Chairman.
 Dr. C. H. Franklin, Union Springs, Ala.
 Dr. P. O. Hooper, Little Rock, Ark.
 Dr. G. G. Tyrrell, Sacramento, Cal.
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 Dr. C. A. Lindsley, New Haven, Conn.
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 Dr. F. H. Gerrish, Portland, Me.
 Dr. J. R. Quinan, Baltimore, Md.

Dr. S. C. Martin, Boston, Mass.
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 Dr. Perry H. Millard, St. Paul, Minn.
 Dr. Wirt Johnson, Jackson, Miss.
 Dr. W. A. Hardaway, St. Louis, Mo.
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 Dr. H. D. Fraser, Charleston, S. C.
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 Dr. S. D. Thurston, Dallas, Texas.
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 Dr. L. B. Edwards, Richmond, Va.
 Dr. N. F. Essig, Spokane Falls, Wash.
 Dr. C. T. Richardson, Charleston, W. Va.
 Dr. B. O. Reynolds, Lake Geneva, Wis.
 Dr. Chas. Smart, U. S. A., Washington, D. C.
 Dr. J. W. Ross, U. S. N., Pensacola, Fla.
 Dr. Walter Wyman, U. S. Marine-Hospital Service, Washington, D. C.

MISCELLANY.

LETTERS RECEIVED.

Dr. J. B. Crowley, Sullivan, Ind.; Dr. F. L. Wadsworth, Dr. G. F. Lydston, Chicago; Dr. Walter Wyman, Washington; A. T. Jones, Nashville, Tenn.; Dr. A. C. Peters, Iowa City, Ia.; Dr. T. H. Manley, New York; Dr. A. B. Bowen, Maquoketa, Ia.; Dr. B. A. Watson, Jersey City, N. J.; Eastman Co., Rochester, N. Y.; Dr. T. P. Crutcher, Nashville, Tenn.; Dr. F. B. Reagor, Flat Creek, Tenn.; Dr. W. L. Moor, Tallahassee, Fla.; Dr. H. T. Rennolds, Baltimore, Md.; Drs. Hobson & Appleby, Bristow, Ia.; Dr. C. R. Schaefer, Indianapolis, Ind.; Dr. C. O. Sones, Panora, Ia.; Dr. J. W. Ferguson, Canaan, O.; Dr. W. H. Forbes, Richmond Hill, N. Y.; W. T. Keener, Chicago; Dr. A. W. Gibson, Brooklyn, N. Y.; Dr. H. Moulton, Fort Smith, Ark.; Dr. J. C. Slack, Folsom, N. M.; Dr. F. A. Butler, Harvard, Neb.; T. W. Hannaford, London, Eng.; Dr. N. B. Bristow, Flat Rock, Ill.; John Wyeth & Bros., Philadelphia; Dr. J. H. Miller, Oconee, Ill.; Dr. C. L. Lewis, Nashville, Tenn.; Dr. P. B. Porter, New York; Dr. J. E. Michael, Baltimore, Md.; Dr. J. B. Hamilton, Washington, D. C.; Dr. H. B. Stehman, Chicago; Dr. J. E. Cowan, Galesburg, Ill.; Dr. C. E. C. S. Thiesen, East Portland, Ore.; Physicians' Supply Company, Philadelphia; Dr. I. M. Rosenthal, Fort Wayne, Ind.; J. M. Anderson, Pine Bluff, Ark.; Dr. Harold N. Moyer, Chicago; Dr. E. Blakeslee, Anamosa, Ia.; John Davol & Sons, New York; Dr. R. C. Stocton Reed, Cincinnati, O.; Dr. W. W. Potter, Buffalo, N. Y.; Dr. M. R. Brown, Chicago; Dr. R. L. Brodie, Charleston, S. C.; Dr. S. O. L. Potter, San Francisco, Cal.; Dr. C. L. Lewis, Jr., Nashville, Tenn.; Dr. Herbert Judd, Galesburg, Ill.; Dr. E. J. Melish, Ishpeming, Mich.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from June 21, 1890, to June 27, 1890.

By direction of the Secretary of War, Major Samuel M. Horton, Surgeon U. S. A., will visit the encampment of the Maine Volunteer Militia, at Augusta, Me., during the period of its encampment, June 30 to July 4, 1890, inclusive, for the purpose of instructing the med-

ical department thereof in its duties in camp, and on completion of this duty, will return to his proper station. Par. 5, S. O. 143, Adjutant General's Office, Washington, June 19, 1890.

Capt. Marcus E. Taylor, Asst. Surgeon, is hereby granted leave of absence for one month, on surgeon's certificate of disability, with permission to go beyond the limits of the Division and to apply for an extension of five months. Par. 1, S. O. 45, Div. of the Pacific, San Francisco, Cal., June 13, 1890.

By direction of the Secretary of War, Major Charles R. Greenleaf, Surgeon, will attend the encampment of the Pennsylvania National Guard at Mount Gretna, Pa., from the 18th to the 26th of July, 1890, for the purpose of accompanying the Surgeon-General of Pennsylvania in his inspection of the camp. Par. 11, S. O. 144, A. G. O., June 20, 1890.

Capt. Howard Culbertson (retired), died June 18, 1890, at Zanesville, O.

Capt. William C. Borden, Asst. Surgeon, is granted leave of absence for three months and fifteen days, to take effect as soon as his services can be spared. By direction of the Secretary of War. Par. 11, S. O. 146, A. G. O., June 23, 1890.

APPOINTMENTS.

To be Asst. Surgeon with the rank of First Lieutenant: Frank R. Keefer, of Pennsylvania, June 6, 1890. Vice Woodruff, promoted.

Thomas U. Raymond, of Indiana, June 6, 1890. Vice Newton, resigned.

Henry D. Snyder, of Pennsylvania, June 6, 1890. Vice Wilson, resigned.

Allen M. Smith, of New York, June 6, 1890. Vice Matthews, promoted.

Ashton B. Heyl, of Pennsylvania, June 6, 1890. Vice Hall, promoted.

Joseph T. Clarke, of New York, June 6, 1890. Vice Porter, resigned.

Official List of Changes in the Medical Corps of the U. S. Navy for the Week Ending June 28, 1890.

John E. Page, Berryville, Va.; Robert M. Kennedy, Pottsville, Pa.; James M. Whitfield, Richmond, Va.; Lewis H. Stone, Litchfield, Conn.; commissioned Asst. Surgeons in the Navy.

Asst. Surgeon Louis W. Atlee, detached from the U. S. S. "Marion" and granted three months' leave.

Official List of Changes of Stations and Duties of Medical Officers of the U. S. Marine-Hospital Service, for the Three Weeks Ending June 21, 1890.

Surgeon J. M. Gassaway, when relieved at Cairo, Ill., to proceed to New Orleans, La., and assume command of the Service at that station. June 4, 1890.

Surgeon G. W. Stoner, granted leave of absence for three days. June 18, 1890.

P. A. Surgeon Eugene Wasdin, granted leave of absence for fourteen days. June 5 and 10, 1890.

P. A. Surgeon J. H. White, to proceed to Savannah, Ga., on special duty. June 9, 1890.

Asst. Surgeon F. C. Heath, granted leave of absence for fifty-eight days. June 10, 1890.

Asst. Surgeon G. M. Magruder, granted leave of absence for twenty days. June 2, 1890. Ordered to examination for promotion. June 5, 1890.

Asst. Surgeon R. M. Woodward, relieved from duty at Chicago, Ill., to assume command of Service at Cairo, Ill. June 4, 1890.

Asst. Surgeon A. W. W. Condict, upon expiration of leave of absence, to report to Medical Officer in command at Chicago, Ill., for duty. June 4, 1890.

RESIGNATION.

Asst. Surgeon F. C. Heath, resignation accepted by the President, to take effect August 31, 1890. June 11, 1890.

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No. 2.

ORIGINAL ARTICLES.

THE MEDICO-LEGAL ASPECT OF ABDOMINAL SECTION.

Read in the Section of Medical Jurisprudence, at the Forty-first Annual Meeting of the American Medical Association, Nashville, May, 1890.

BY A. VANDERVEER, M.D.,
OF ALBANY, NEW YORK.

A year ago I had the pleasure of presenting to the Section on Obstetrics and Diseases of Women and Children, American Medical Association, a paper on "Concealed Pregnancy, and its Relation to Abdominal Surgery." In the preparation of that paper considerable time was devoted to the compiling of a table of cases wherein abdominal section revealed an undiagnosed pregnancy. This table is measurably complete, and journals, by extract and summaries, have given a wide circulation to the paper and the table. While that table was in preparation, from letters and other sources, my attention was called to the medico-legal aspect of abdominal surgery, in its general relations, and to the probable testimony of expert witnesses in the cases where an action for malpractice is brought. For this, and the other reason that two American surgeons have already been compelled to plead to an indictment of manslaughter, it seems to me profitable to join this paper rather as a supplement to the one of last year by considering certain medico-legal points of abdominal surgery. A letter from a very eminent American surgeon in relation to one of these cases, says, "For my part I do not see how the error occurred," and I have numerous other letters stating that we ought never to be unable to diagnose pregnancy, especially after the fourth month. Testimony such as this would have been very dangerous to such as Professor Freund, Karstrom, Wm. Varian, Professor Czerny, Professor Byford and others equally as competent, had they been placed on trial for malpractice.

We all may at any moment be placed upon our defense by clamor of the public press, which seldom, very seldom, gets down on the right side of any medical question. Dr. Mary A. Dixon Jones is a conspicuous example of newspaper

persecution, which happily she overwhelmed. Designing attorneys, with prospects of good fees, may urge unwilling people into litigation, or avaricious relatives may, failing in levying blackmail, institute an action. Motives no different from these give rise to nine-tenths of all actions for malpractice.

In case of the death of the patient the surgeon may be proceeded against, criminally, by an indictment for manslaughter, and civilly, by an action for damages. One action criminal, is no bar to another civil, for damages, nor can the result in one prejudice the result in the other. If the surgeon be proceeded against by an indictment, in my own State, New York, the indictment is drawn under the provisions of the Penal Code, Section 195, viz.: "A person who, by an action of negligence or misconduct, in a business or employment in which he is engaged, or by any unlawful negligence or reckless act, occasions the death of a human being, is guilty of manslaughter in the second degree."

In States where no statutory provisions have been enacted, the indictment is drawn at common law. At common law, "If a physician or surgeon or any person assuming to be such, by his gross negligence, or gross ignorance, or by his rashness or want of proper caution, causes the death of his patient, it is manslaughter." (Field's Medico-Legal Guide.)

As the statutory provision is drawn from the common law and depends for its interpretation on the interpretation of the common law, we can find no clearer demonstration than that of Lord Ellinborough (Rex vs. Williamson, 3 C. & P. 635), in his charge to the jury. He says, "To substantiate the charge of manslaughter the defendant must have been guilty of criminal misconduct arising, either from the grossest ignorance or the most criminal intention. One or the other of these is necessary to make him guilty of that criminal negligence and misconduct which was essential to make out a case of manslaughter. It does not appear that there was any want of attention on his part and from the evidence of the witnesses, on his behalf, he possessed some degree of skill." (The defendant in this case had forcibly torn away a prolapsed uterus, following delivery). "I think the defendant could

not possibly commit such mistakes in the exercise of his unclouded faculties, and I own that it appears to me if you find the defendant guilty of manslaughter, it will tend to encompass a most important and anxious profession with such dangers as will deter reflecting men from entering into it." (The verdict not guilty was entered in this case). So far as I am able to learn, charges to juries have been uniformly that gross neglect or gross ignorance, or both, must be shown on the part of the prosecution beyond a reasonable doubt before conviction can be had. Then, as has already been shown, the prosecution must stand or fall upon the proof of gross negligence or gross ignorance, one or both, or in other words, criminal misconduct. Gross ignorance and gross negligence are both questions of fact, and must be passed upon by a jury. In consequence, the standard of care and skill form that, and other facts and conditions, must be a variable one. But they are not questions of fact purely. It is the duty of the court to charge the jury with reference to degrees of care and skill by definition and illustration. It has been maintained that it is impossible to make precise distinctions between negligence and gross negligence. Mr. Justice Bradley (U. S. S. C. Reports,) says, "In deciding the question of negligence where there is any conflicting testimony, and ordinarily where there is not, all the facts and circumstances should be submitted to the jury with instructions to the jury that in deciding whether there was ordinary care or gross negligence, they are to consider the position of the party, his business, his duties and responsibilities, and that, the same act which under some circumstances would not show any degree of negligence might under others, show want of ordinary care; and under still other circumstances might show gross negligence, and this should be settled by the jury as a question of fact, and not by the court as a question of law."

Gross ignorance is open to the same objection that gross negligence is, viz.: of being relative. That which under some circumstances would be ordinary skill, in other circumstances would be ignorance, and, in still other circumstances, would be gross ignorance. The very favorable rule of law has been laid down that, "The least amount of skill therefore, with which a fair proportion of the practitioners of a given locality are endowed, is taken as a criterion by which to judge the physician's ability or skill." (Bouvier's Inst. 1004-5.) "The surgeon must adopt the means and apply the skill well settled by the highest lights of his profession. He must possess and practically exercise that degree and amount of skill, knowledge and science which the leading authorities have pronounced as the result of their researches and experience up to the time, or within a reasonable time before the issue or question to

be determined is made." (Elwell on Malp., 55.)

Again surgeons residing in the large cities with hospitals and other superior advantages, will be required to possess greater skill than those living in localities remote from such advantages, and there seems to be a concensus of judicial opinion that unless specifically contracted for, the surgeon is only bound to exercise the ordinary care and skill.

By way of illustration let me present a single case the kind of which is not likely to occur again. Surgeon A. is called to a case of abdominal tumor. By examination he finds that the patient is thirty-six years, married twenty years, no children. The tumor has been growing eight months. Patient has never menstruated regularly, often not flowing for five or six months, and now has not menstruated for eight months. She has vomited and been constipated at intervals, has felt no quickening and does not believe herself pregnant. Vaginal examination reveals a cervix high up, somewhat enlarged, os uteri not patulous or particularly enlarged, unable to make out body of uterus. Upon abdominal examination a distinctly fluctuating tumor is made out located centrally and evidently from the physical signs contains fluid within a cyst. The diagnosis of ovarian cyst is made, and an operation proceeded with. Upon opening the abdomen the tumor appears. The walls are thin and not of unusual appearance; the trocar is introduced and six quarts of fluid withdrawn, after which the operator finds he has tapped a pregnant uterus. He completes the operation by a Cæsarian section, and in five days the woman dies of septicæmia. Surgeon A. is indicted for manslaughter, the indictment averring that he through gross ignorance, by gross negligence, by rashness or want of proper caution, caused the death of his patient. The indictment is drawn under the provisions of the common law of the State in which he resides. Surgeon A. pleads not guilty, and the trial is proceeded with. The prosecution prove the facts as have been heretofore stated, and call expert witnesses to prove gross ignorance, gross negligence, want of caution or rashness. The only way they can demonstrate the facts so essential for conviction, is by expert testimony. The chief question involved and presented with earnestness: Was there sufficient symptoms of pregnancy present to arouse the suspicion of pregnancy, and did the defendant exercise sufficient care and skill in making his diagnosis? The opinion of the witnesses for the prosecution is that sufficient symptoms, amenorrhœa, vomiting and the presence of a tumor was sufficient evidence of pregnancy to require a most searching examination before pregnancy could be excluded, and that the defendant was negligent and unskilled in his examination. It is shown that he did not examine the breasts for the changes that

occur in pregnancy, that he did not inspect the vagina for the change in color (wine leaf), he did not seek to illicit ballottement, that he did not lay sufficient stress upon these and other symptoms as to the probabilities of pregnancy, and that a proper explanation of the possibilities of her condition was not made to the patient and to her friends, previous to the operation. That no suggestion was made by the operator as to the necessity of exploratory incision, if at all in doubt as to the diagnosis.

The defendant showed by competent witnesses that he had exercised the average care and skill in examining the patient, that he had not acted with undue haste or rashness, and that he was honest in his belief that the case was one of ovarian cyst. He admitted having committed an error of judgment, which he believed was liable to occur in the hands of surgeons of good reputation under existing circumstances. The case was ably tried and the jury brought in a verdict of guilty. It was carried to the next court, and there the court on argument overruled the verdict, presenting some very strong points on the subject, part of the line of argument being that the surgeon was shown to have been a man of great experience, of large practice, a man who stood extremely well with his professional brethren, who had for years maintained a high reputation, very far above the average. That the verdict rendered by the jury was not for the public good and that the conviction ought not to stand. No further attempt was made by the prosecution.

Another case which illustrates ninety-nine per cent. of the cases of concealed pregnancy, where an operation has been done, is surely not so easy of diagnosis, being that of Surgeon B., having a patient aged fifty, married many years, always sterile. Fibroid had existed for twenty years or more, pregnancy not suspected. A hysterectomy was done for the removal of the fibroid, and when the uterus was opened, to his own and everybody's surprise, the surgeon brought out a buxom foetus which seemed also very much surprised, for it immediately began to cry. It proved to be at least eight months old and all right. There was also a very large fibroid which was very vascular. Unfortunately the patient died soon after. Surgeon B. was tried for manslaughter and acquitted.

Perhaps one of the most unpleasant cases of malignant persecution is the case of Surgeon C., where after careful explanation to the patient of the physiological change that would take place, and her condition after the operation, it was finally decided to remove the uterine appendages. The operation was done, the patient recovered, and some months afterward a suit was brought against Surgeon C. for wilful mutilation. It was shown that all proper explanation had been made to the patient and to her friends, that the opera-

tion had been skillfully done, and the patient made a good and speedy recovery, and yet the jury disagreed. A second trial took place some time after and the surgeon was acquitted, yet he had been to great expense in his defense and had lost much valuable time, but the laws of his State afforded him no redress whatever. I might cite other cases, but can say earnestly, and for the comfort of the honest and well-meaning surgeon, that I have not been able to find a case where conviction has occurred and the higher courts have sustained the verdict. A careful study of the rulings of the courts and charges made by judges to juries in such cases, brings up prominently the fact that the law recognizes no one school of medicine. The doctor must practice the necessary skill in the diagnosis of his cases and he must exercise the average degree of ability in the doing of the operation, and that he is not supposed to do more than is required of the person possessing an average amount of skill. Another point that seems to have been presented with considerable force by some of the rulings, is contributory negligence on the part of plaintiffs. In several operations it was shown that the plaintiff wilfully withheld from the surgeon certain symptoms, and that she purposely misled him by making statements of conditions that did not really exist. This would have been the case had Drs. Prince and Varian's cases been presented for trial. Beyond a doubt on these points alone plaintiffs would have been ruled out of court.

Referring once more to the case of Dr. Jones, which has been so recently before the profession, she says in answer to a letter of mine that "She is glad to know that the subject of the medico-legal aspect of abdominal section is to come up for discussion at this meeting," and states as follows: "There is a necessity to look into these subjects. Under the existing laws of the State of New York, a surgeon has no protection. If, in his efforts to relieve the sick and suffering, he decides to do abdominal section, or indeed to perform any surgical operation, and if, notwithstanding his best directed efforts, the patient should die, he is liable to, or may have a suit for malpractice or an indictment for manslaughter in the second degree. If the patient lives and does well there may still be a suit for malpractice. The surgeon may spend his strength, his time and give his best efforts to relieve the suffering poor, yet under the law, and by the law, these same persons, for whom he has labored, may turn and rend him and use every effort for his destruction, personal and professional. Malice at any time may so construe the law that at any unexpected moment the surgeon or physician may find himself in the most serious and unpleasant difficulties. Thus it is simply dangerous to practice medicine and surgery in the State of New York.

A distinguished lawyer said to me the other day, that however well prepared he might be, yet he would not, as the law at present stands, *dare* to practice medicine, and he thought he had about as much courage as most people.

Section 200 of the Penal Code, says:

Liability of Physicians.—A physician or surgeon who being in a state of intoxication administers a poisonous drug or does any other act as a physician or surgeon to another person which produces the death of the latter is guilty of manslaughter in the second degree.

But according to Judge Bartlett's ruling, "Physicians are also liable under Section 193 of the Penal Code in connection with the proceeding provisions." Subdivision 3 of Section 193 says: "By any act of procurement or culpable negligence." This comprehends a great deal and can be made to mean anything. A physician or surgeon though he may have the best preparation, yet by any act of procurement as administration of medicine or surgical operation, if the patient dies he may be found guilty of culpable negligence. There will always be found physicians who would have used different procedures, or advised another course as preferable.

If a surgeon for the welfare of a patient deems it best for him or her to perform abdominal section and death ensues, malice can, under subdivision 3 of Section 193, have him indicted for manslaughter in the second degree.

If a surgeon neglects to perform abdominal section, when in the estimation of another it should have been performed, and the patient dies in consequence of the pelvic conditions, that surgeon under Subdivision 3 of Section 193, of the Penal Code, can be found guilty of culpable neglect, and indicted for manslaughter in the second degree.

Judge Bartlett says further: "If a person assumes a certain amount of skill, and does not develop that amount of skill, his act is guilty of culpable negligence." How largely malice or blackmail may misjudge this skill and use the law for direct persecution, or as the *New York Medical Journal* puts it, for "Roasting Physicians."

Notwithstanding the strong points she presents, I am of the opinion that the courts have ruled in justice to all concerned in these cases. It is necessary that the public have proper protection, that while we must advance in our profession only by experience and accumulated skill in the doing of untried operations, yet in their performance great caution and the careful study of cases becomes a necessity. It will be observed that, while it has been a great hardship and required much resolution for the surgeons who have been attacked to defend themselves, yet they have in the end triumphed.

What I would like to see as the result of this discussion is, the betterment of our laws in this, that surgeons may have better protection in the

recovery for loss of time, for expenses they have been put to, when it is proven that the case was urged by some disreputable lawyer, or by those personally malignant, within or without the profession.

My conclusions would then be:

1. That we should exercise the greatest care in the examination of our cases of doubtful diagnosis.

2. That when in doubt we should lay great stress upon the necessity of an exploratory incision, and make a very proper explanation of what this means to the patient and friends.

3. That in the cases thus far brought to trial, we have reason to believe that the judges in their rulings have treated our profession with great fairness, the strong points being, that the public good is not subserved by undue and wilful persecution of the surgeon who has shown the proper amount of intelligence in his profession.

4. That we should seek still to have the law so made in our favor as to eliminate the cases of wilful prosecution.

5. That in the careful study of these cases we have presented the lamentable condition of expert testimony. Men absolutely ignorant upon the subject, men who have never done an operation of any merit in surgery, being allowed to come upon the witness stand and testify as experts.

THE MEDICO-LEGAL ASPECT OF EXPLORATORY LAPAROTOMY.

Read in the Section of Medical Jurisprudence at the Forty-first Annual Meeting of the American Medical Association, held in Nashville, Tenn., May, 1890.

BY W. C. WILE, A.M., M.D.,
OF DANBURY, CONN.

All abdominal operations which involve section of the peritoneum are in a measure exploratory. The parts we seek are out of sight, and it is only from the signs, symptoms and history of the case that we can make a diagnosis; and the diagnosis warranting it, we are justified in entering the cavity. We are justified in entering the abdominal cavity, I say, for in the present light of anti-septic surgery, and with the statistics which we have to-day of successful laparotomies, hesitation on the part of the surgeon to attempt *e. g.* to free an obstructed intestine when the symptoms pointing to it are manifest; or to proceed to surgical interference in a case of appendicitis when the indications for such interference are clear; or to explore in cases of abdominal tumors where diagnosis is probable and the life of the patient is endangered; or even to explore where, in cases of profound shock proceeding from some internal source which points to lesion of the abdominal viscera or pelvic contents—hesitation to proceed to surgical relief in such cases is negligence on

the part of the surgeon, as much so as delay to open a knee-joint filled with pus, or to tie a severed femoral artery. Abdominal surgery to day is a recognized proceeding, and given a case, with diagnosis as clearly defined as is possible, where prolonged suffering or death is imminent from a continuation of affairs, nothing short of exploration to ascertain exactly what the matter may be and with a view to affording relief, is warranted. How true is the affirmation of A. W. Mayo Robson, F.R.C.S., that an exploratory operation has frequently proved curative when apparently nothing beyond incision and exploration by the fingers has been effective. The following case probably explains the nature of these cures. In the Hospitals ("Tidende," 1889), Dr. Howitz describes a case of strongly adherent omentum, with displacement of the stomach and intestines. The patient had been treated for gastric ulcer, also for "the womb;" pessaries had been applied, and douching and massage of the hypogastrium practiced in vain. Dr. Howitz carefully liberated the omental adhesions, so that the displaced viscera returned to their normal positions. All the pain and discomfort from which the patient had so long suffered rapidly disappeared.

How much assurance can we obtain from the successful statistics of Mr. Lawson Tait, who is reported to have performed 135 consecutive laparotomies without a death! Successful abdominal operations with different degrees of extensiveness have been performed upon every abdominal organ. The progress of surgery in this direction is truly marvelous, and as we review in our minds the list of operations which have been successfully performed for gastrotomy, pylorotomy, gastroenterostomy, gunshot wounds of the stomach and intestines, gunshot wounds of the stomach and liver, resection of the intestines, intestinal obstruction, typhlitis, perityphlitis and appendicitis, colotomy, extraperitoneal hepatotomy, hepatorrhaphy, hydatid cysts of the liver, cholecystotomy with ligature of the cystic duct, cholecystenterostomy, cyst of the pancreas, abscess of the spleen, splenectomy, hydatid cysts, wandering or floating spleen, rupture of the kidney, nephrorrhaphy, nephrectomy, diaphragmatic hernia, and the operations for inguinal hernia, we cannot stop short of wonder at the scientific perfection of surgery at the present day.

Now, in the light of all these attainments in abdominal surgery, what shall we do when we are consulted in reference to some condition existing within the abdominal cavity which we recognize as probably jeopardizing the patient's life? Shall we mask the only possibilities of relief through interference, by simple palliation? Shall we put our trust off, assuming ignorance as to any further relief than simply the relief from pain, and keeping the vital machine in motion, until the wheels become clogged, or some pipe

bursts? Shall we, because the operation is attended with some danger, deprive the patient of the only possible chance of escape? And shall the reward be awaiting us, that if the condition of that man or woman is in whatever manner made worse from the attempt, we shall have to suffer the penalty of the law for our efforts? How grand, on the one hand, the idea; on the other how small! But it is with all possible care and precaution that any such surgical step should be undertaken. The first great step to be considered before proposing, or consenting to operate, is *diagnosis*. The symptoms of obstructed intestine or of ruptured extra-uterine pregnancy are fairly well defined, and, placed in one side of the balance, operative interference; what can be found to counterbalance the other side, when on the one hand the obstruction has remained for three days, if forsooth so long; or on the other hand, our ruptured tube has been recognized?

It was my sad lot during the past year, to be obliged to stand by, and witness the life-blood ebb away from a ruptured pregnant tube, because the family would not consent to an operation. Slowly and surely the lamp of life grew dim, until in eight hours from the time I was called to the patient, she had breathed her last.

In this case the diagnosis was absolute: Profound shock, dulness, gradually increasing in the left hypogastric region, the os uteri tilted forwards and high up, irregular menstruation, and the onset of the rupture, caused by a strain from lifting. Here a young life was lost, through what? The consent of the Church had been obtained (the patient was a Catholic)—through ignorance of the family and their friends, who preferred letting her die, rather than submit to a simple (comparatively so) operation which offered the only possible chance of recovery.

In this case, had the operation not saved the patient's life, of course the surgeon would not have been blamed, and no legal question would have arisen; but let us suppose a case where the symptoms are not so clearly defined. We are summoned in the night to see a woman suffering with intense pain in the left ovarian region. No tenderness can be found upon vaginal examination, the pain and tenderness are limited to the one spot over the ovary, no tumor can be felt.

Relief is obtained by the use of anodynes and counter-irritants, and in a day or two the patient is quite improved. A week or so passes and the doctor is summoned again. The pain is returned with all its vigor. The patient is once more relieved from pain, and continues so for two weeks, when she decides to visit New York City for a pleasure trip. While there the pain again returns and a specialist is called in, who diagnoses ovarian, or tubal disease, and proposes that she be removed to the hospital for the purpose of an exploratory operation, with the view of removing

the diseased parts if such be found. Thus far this case is actual, and occurred in the writer's practice. But she did not go to the hospital, neither did she have an exploratory incision made; but dismissing the specialist and returning to the family doctor of the friends in the city, and finally consulting two other physicians after her return home, she was finally cured by the last doctor, who rubbed on some smarting liniment, for the rheumatism which he said she had in the *end of the spine*, and which he said was the cause of her trouble. Now, laparotomy is not often advised for rheumatism in the end of the spine; but had she been operated on and recovered, all would have been well and good. But suppose (and here is the question of the paper) an exploratory laparotomy had been made and she did not recover, having succumbed, *e. g.*, from the shock of the operation, and the husband brings suit against the surgeon for damages, *what defensive argument can the doctor present in answer to the charges made against him?* This is what is meant by the title of this paper: "The Medico-legal Aspect of Exploratory Laparotomy." It seems to me that the answer as to the responsibility on the part of the surgeon resolves itself into the following: Laparotomy to-day is in skilful hands a recognized operation. There are certain conditions of disease or accident which can be reached only through abdominal section. The surgeon must be certain as far as possible from his diagnosis, that a given condition, or conditions warranting exploration exist. He ought to be accurately informed as to the correct method of reaching the parts through operative interference. He should know just when the operation ought to be performed in order to obtain the best, or safe results. Beyond this the responsibility lies with the patient, or the patient's friends. They should be informed of the danger of the disease as it exists unrelieved; they should be informed as to the gravity of the operation, and its risks, and they should be warned that in the event of unfavorable result, either through failure of the vital powers to stand the shock, or from a too great extent of diseased parts to permit successful manipulation; or even in the case of a possible mistaken diagnosis after sufficient consultation has been held, the doctor shall not be blamed.

Gentlemen, this is not too great precaution when undertaking such operations. We may be skilful operators; there may be money in the operation; it may bring us fame if we succeed—but the operation of opening the abdominal cavity and handling its contents is no child's play, it is a dangerous proceeding at its best, notwithstanding 135 successful consecutive operations; and a failure might bring the hands of the law heavily down upon the head of the would-be benefactor. But, bringing our best and cautious efforts to bear in a case where we are firm in our

conviction that the only salvation lies in operative procedure, we should not hesitate to give the patient every advantage of the enlightenment which is ours, the outcome of skilful experience.

TWO CASES OF HYPERTROPHY OF THE ADENOID TISSUE OF THE BASE OF THE TONGUE, ONE OF THEM PRODUCING "SERIOUS SYMPTOMS."

Read in the Section of Laryngology and Otology at the Forty-first Annual Meeting of the American Medical Association, at Nashville, Tenn., May, 1890.

BY J. E. BOYLAN, M.D.,
OF CINCINNATI.

The pathological importance of the denser layer of lymphatic tissue which has been considered by various observers since Henle's time, and which Waldeyer has shown to exist, normally in an unbroken circle from the base of the tongue around the arcus glosso-palatinus to the tonsil of the fauces, from it to the tube lip and thence to the posterior upper pharyngeal wall on either side, was called into general notice some thirteen years ago by Meyer in his celebrated paper on "Adenoid Vegetations." Since Meyer's communication, repeated investigation of the structure and dimensions of this "lymphatic ring" by Lenschker, Waldeyer, Gerlach, Schwartz, Trautman and others, has demonstrated that besides at the fauces, principally in two well defined regions, is this tissue massed in a similar manner to that between the pillars. In the vault of the pharynx it exists no longer as a denser layer, but as a circumscribed and systematically arranged mass, comprising almost the whole thickness of the structure and attached by loose connective tissue to the fibro-cartilage basillares, no muscular fibres existing behind it. (1). It is further characterized by a grouping of the follicular glands containing their closed follicles and deep seated sinus glands, the ducts of which open upon the free surface and are filled with the usual gray mucoid substance.

Next important in point of quantity to the pharyngeal tonsil is the similar aggregation of this tissue at the base of the tongue; here it exists in the form of a denser layer extending usually across the whole dorsum and though varying in its dimensions is present in sufficient quantities to have induced Waldeyer to look upon it as nothing less than a flattened tonsil which he designates "tousilla lingues."

Gerlach, who has traced this tissue upon the tube lip, has seen fit to speak also of a tonsil of the tube, though the strata is here much less dense, and according to Trautmann,¹ rarely, if

¹ Trautmann's work on Adenoid Vegetations with report of 177 autopsies.

ever, hypertrophies. It is however, not the province of this report to raise the already widely discussed question whether the term "tonsil" may be correctly applied to these structures, or to enter into a consideration of their function; but to submit that the lymphatic tissue at the base of the tongue, has, in common with the lymphatic tissue of the other parts of this "ring," a marked tendency to hypertrophy; that owing to its location and the fact that consecutive disturbances occur here less readily, its enlargement is frequently overlooked and that it at times gives rise to serious symptoms. In this connection I wish to report the following two cases which have come under my observation in private and clinical practice during the past three years:

Case 1.—Mrs. M. called on July 26, 1888, to consult me regarding a long standing and very irritable sore throat and for advice as to the expediency of spending the summer in the mountains of Vermont, for which region she was to start in a few days. Patient was 40 years of age, anæmic, emaciated and in an extremely weak and nervous condition, and had been under treatment for malaria during the winter. She had cystic enlargement of the thyroid gland, quite soft and movable, which had attained the size of an average orange, which, however, gave her so little trouble that she considered its treatment a matter of minor importance that might be undertaken after she had obtained relief from the very annoying symptoms within the larynx; these she described as pain, irritability, huskiness of the voice, the sensation of a lump in the throat which interfered at times with her breathing and a frequent desire to swallow. Inspection disclosed ragged honey-combed tonsils. The mirror reflected the somewhat enlarged arytenoids and the posterior half of the vocal chords, upon the latter some tenacious secretion. But the feature which at once arrested the attention was the condition at the base of the tongue. The whole of the surface between the fauces was raised to a pale tumor-like mass which completely overshadowed the epiglottis, its very irregular surface consisted of closely crowded pale tit-like elevations or lobules, some of them apparently as large as the tip of the little finger, which at first sight had a succulent appearance, but which the probe proved to be rather dense and resisting; between these prominences the probe sank readily into several deep fissures with perfectly smooth and flattened walls, which closed over the instrument as it sank so that they could not be detected by the eye. Patient and her husband emphatically declined any operative interference not absolutely necessary until she should have regained her strength. Ordered iron, cod-liver oil and a stimulating inhalation to be used during the summer. Patient promised to call immediately upon her return. September 5th patient presented herself

again, her general health much improved having gained in strength and weight. The tumefaction at the base of the tongue is, if anything, larger than when she went away, and the most serious complaint that she had to make during her absence was of an increased difficulty in breathing which became much worse at times when she lay on her back. Patient was obliged to go to New York on business for six weeks, but agreed to submit to an operation immediately upon her return. November 2nd patient and her husband called to state that during her sojourn in New York alarming dyspnœa had developed, so that she had to be propped up in bed at night, and that she had called in a well known surgeon of that city who saw in the enlargement of the thyroid the cause of the dyspnœa, and recommended ligation, alternately, of two of the thyroid arteries with as little delay as possible. The alarming symptoms, however, abated somewhat, and believing his wife not in condition to submit to so formidable an operation Mr. M. had brought her home to be treated according to some milder method. She was resting from her journey and would come to the office in a few days. A fortnight later I was called up at two o'clock in the morning to come in haste to the home of Mrs. M., who, the messenger said, was suffocating. I found her propped up in bed with slightly labored respiration, weak and much alarmed over an attack of dyspnœa which she was just recovering from. The enlargement of the thyroid was about in the same condition that it was four months previous, soft and not increased in size; but the change in the appearance of the swelling at the base of her tongue was striking. It was considerably larger and of a much brighter red—nothing could now be seen of the larynx but the posterior upper surface of the arytenoids and the epiglottis was so overshadowed that no part of it was visible. Free scarification with a laryngeal knife soon relieved all symptoms of dyspnœa and I left her promising to attack the swelling in a more radical way on the following day. Two applications of the galvano-cautery, which to my very nervous patient, were most formidable and painful operations, relieved her entirely and permanently of dyspnœa, though a serious attack of illness soon after confined her to her bed before the treatment was completed. I was fortunate enough to see her after a prolonged absence only last week, and though she could never bring herself to have the goitre energetically treated, she has remained quite free from all the symptoms in the larynx which had previously caused her so much distress.

Case 2.—Mr. H., musician, 22 years of age, has been annoyed of late by pain and irritation at a certain spot in his throat where he thinks a little piece of bone or bristle must have lodged which he can feel plainly when he swallows and

its presence causes him to swallow frequently. He has to cough a great deal and finds that his voice soon tires in conversation so that it becomes difficult for him to continue his instruction. Examination shows some indurated enlargement of the tonsils of the fauces—the larynx comparatively normal—at the base of the tongue there is hypertrophy of the adenoid tissue which increases in thickness as it reaches the median line, where there are eight or ten excessively developed nodules which overlap and lie upon the reddened and injected epiglottis. At the sides the epiglottis lies in close contact with this irregular surface of tissue and appears to be imbedded in it. Firm traction on the tongue discloses nothing of the sinus glosso-epiglottici, but the margin of the epiglottis can be seen to free itself from the overhanging tissue. After a liberal application of cocaine the bulk of the hypertrophy was removed with Hartman's pharyngeal curette in the reversed position very satisfactorily. At the second visit chromic acid was applied to the remaining excess of tissue, but by the act of deglutition, which the patient could not resist, the uvula and adjacent parts were brought into contact with the acid, and I have, therefore, not used it since. The treatment resulted in entire relief from all the symptoms.

As Swain (2), Curtis (3) and McBride (4) have pointed out, the symptoms of pain and irritation, the presence of a foreign body and impaired power of phonation which are almost invariably present in these cases, are probably produced either by direct mechanical interference with the movements of the epiglottis or by reflex irritating action upon the motor-laryngeal nerves. Though defective respiration may possibly also be due to the last mentioned cause, I am convinced that in Case 1 of this report, it was produced by direct infringement of the hypertrophied and inflamed tissue upon the region of the chink of the glottis. In both the cases there was enlargement of the tonsils of the fauces—in one granular pharyngitis. Observation for the past three years, wherever opportunity afforded, has convinced me that the condition of the tongue back of the circumvallate papillæ may vary from a perfectly flat surface, to one in which excess of tissue is quite apparent, and as Swain in his very excellent treatise on the structure of this tissue (2) has shown its enlargement to be a true hypertrophy, it will be frequently difficult to determine whether we have to deal with a normal or pathological condition. But as the excessive tissue is easily and quickly reduced the presence of annoying symptoms should be the indication for operative interference.

LITERATURE.

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SUGGESTION ON THE USE OF ELECTRICITY IN EAR DISEASES.

Read in the Section of Laryngology and Otology at the Forty-first Annual Meeting of the American Medical Association, Nashville, Tenn., May, 1890.

BY E. L. JONES, M.D.,
OF FLORENCE, ALA.

When I received an invitation from your Secretary to prepare a paper for the Section of Laryngology and Otology, my first thought was to decline, on the ground that it would seem like presumption for me to appear in the rôle of instructor to those so much my seniors in authority and experience as the members of this learned body. The remarks which I shall make at least present the merit of originality, so far as my knowledge goes, and the frequent occurrence and incurable nature of the affections to which they pertain certainly demands our thoughtful consideration of anything that may benefit the vast multitude whose hearing is impaired or lost through these diseases.

My conclusions are based largely on the successful applications of these principles to analogous conditions elsewhere, and somewhat on the results of a limited personal experience. Just here I would distinctly state that I had intended to keep these thoughts and practices strictly to myself until it could be proven by the crucial test of long experience whatever of truth or error there might be in them; but when the opportunity of presenting them to this Section occurred, it seemed an appropriate time to give them to those in whose hands it shall be found "whether they be of good or evil report." I am aware that in aural as well as other fields of medicine many and unreasonable things have been expected of electricity, and in referring to the authorities at my command, in some I find it not mentioned at all, in others only to be condemned.

After this preface I would direct your attention to what I shall entitle "The Thorough and Systematic Application of the Continuous Current to the Proliferous or Chronic Non-suppurative Inflammation of the Middle Ear, and to Similar Conditions from Long Past Acute or Suppurative Inflammation."

Let us first look at the pathological conditions present, and see what are the results from established methods of treatment. As you all know, repeated post mortems have shown in such cases that the drum head is thickened and inelastic, the lining of the tympanum hypertrophied, the ossicula wholly or partially ankylosed, and the drum cavity filled with organized fibrinous exudation, completely binding everything together; and this same hypertrophy generally extends to the Eustachian tubes, causing more or less stricture and impairment of functions. And your experience will also confirm the statement of authors that the maximum results to be hoped

for is to stop the further progress of the disease, and that, in spite of the most persistent treatment, the distressing tinnitus and deafness often go on to melancholy seclusion or the ear-trumpet. Surely any procedure that will throw the bright light of hope on this gloomy picture should be gladly welcomed.

I will first direct your attention to the indisputably successful application of the continuous current to analogous conditions elsewhere, which first led me to the thoughts embodied in this paper. For many years it has been known and acknowledged by those who have studied the subject, that there is nowhere so powerful a sorbefacient and local circulation stimulant as the continuous current properly used. By this electrolytic action immediate chemical and molecular changes in the tissue acted upon are effected, and this action continues after the applications cease.

For instance, this plan of treatment has been long and successfully used for localized effusions and exudations, urethral stricture, nævi, hypertrophied tonsils, and tumors of many kinds in various localities, where reasons existed for abstaining from more radical surgical methods, and, mostly of all, a subject toward which the eyes of the whole medical world are directed—Apostoli's treatment of uterine fibroids. By this latter a revolution has been wrought in gynecological practice, and numberless cases are cured which heretofore had either to suffer in silence or undergo the great risk of a most dangerous hysterectomy. This treatment has now won for itself a recognition almost universal, and its opponents are found only amongst two classes: those who have not tried it at all, or those who have tried without an adherence to proper indications or correct methods of procedure, according to which standard the most firmly established truths will fall. This plan is also successfully employed in chronic uterine hyperplasia, where the uterus is heavy, large and infiltrated with fibrous material, a condition in the womb quite similar to proliferous catarrh in the ear, in that both are very common, very distressing, and very difficult of permanent relief by methods heretofore in vogue.

It will be seen that in these troubles the electricity is not used with reference to its action on the nerves, as in most of its other therapeutical applications, but purely for its electrolytic and sorbefacient effects.

Under the Apostoli treatment large tumors are made less in size, and the enlarged and heavy uteri are reduced in bulk and hardness, giving great relief to the patient.

In cases of subacute and chronic cellulitis with exudation, semi or wholly organized, it will also promote absorption, and, if used early enough, prevent the adhesions which make the sequelæ of this disease so distressing. In this will be seen the analogue of the fibrinous exudation found in the ear.

Before describing my method of procedure I would make a few remarks relative to the polar actions of the current. Of course it will be understood that these apply only to the galvanic or continuous current, the Faradic and magnetic having none of these properties.

Experiment shows that if two needles attached to the poles of a galvanic battery be stuck into a piece of flesh and a sufficient current turned on, a decomposition called "electrolytic" will take place around the needles; acids will be generated at the positive pole, and alkalies at the negative, phenomena entirely independent of vital action. In living tissue it is found that the negative is the more congestive of the two poles, causing increased redness and vascularity of the locality to which it is applied. It is this pole we bring in closest relation to the tissue desired to be absorbed. In making these applications to the ear I use for the external meatus an electrode consisting of an insulated rubber speculum with handle, through which speculum runs a conducting wire. This is attached to the negative pole, and the patient inclining the head from the ear to be treated, the meatus is filled with warm salt water and the speculum introduced.

If the Eustachian tube is easily pervious, the positive pole is attached to an ordinary sponge electrode and pressed under the angle of the jaw of the opposite side. If the tube is not freely open, the positive pole is attached to an electrode consisting of a hard rubber Eustachian catheter with a copper wire running through it. The catheter, with the wire drawn inside, is introduced in the usual way, and the wire being held firmly, the catheter is withdrawn about half an inch, leaving the wire in the tube. The current is now turned on until the burning feeling is as great as the patient can comfortably bear, and continued from five to ten minutes. The oftener the treatment can be given, the better, but I know of no exact limitations as to the intervals between applications.

On inspection the drum heads will be seen to be intensely red and congested along the malleus handle and at the periphery, which increased determination is necessary to absorption. The tubes soon become easily pervious, even attracting the notice of patients. In time the drum head and malleus are seen to become more movable, and improvement in hearing goes along *pari passu*. In conjunction with this the ordinary treatment of the throat and naso-pharynx, with inflations, etc., should be used.

In the limited number of cases in which I have applied this treatment it was only used after the regular orthodox methods had been tried long enough to show their inutility, and in all the improvement was most marked afterwards.

I have not yet had a sufficient number of cases to base much upon the result of experience. My

location is in a small town where material is not abundant, and I have not been using the method long; but if I shall succeed in directing the attention and work of the profession to what may prove a very valuable addition to our means of combating this deplorable condition, I shall feel that my efforts have not been in vain.

THE VALUE OF THE LEITER INCANDESCENT-LAMP URETHROSCOPE IN THE DIAGNOSIS AND TREATMENT OF CHRONIC URETHRAL DISCHARGES.

Read in the Section of Surgery and Anatomy at the Forty-first Annual Meeting of the American Medical Association at Nashville, Tenn., May 20, 1890.

BY JOHN B. DEEVER, M.D.,

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Having used the Leiter incandescent-lamp urethroscope for some time with most gratifying results, both in the diagnosis and the treatment of

The Leiter incandescent-lamp urethroscope (made by Leiter, of Vienna), consists of three pieces: the handle, the lantern, and the urethral canulæ, or tubes. The handle is made of vulcanized rubber and has upon its upper end a small incandescent lamp, which is connected with the two binding screws projecting from its lower end.

The light steel spring on the side is the key by which the current is connected and broken. The handle fits into the bottom of the lantern.

The lantern is a gutter-shaped box, roofless, having at one end, which I will call the ocular end, an obliquely placed concave lamp for the purpose of reflecting the light of the lamp along the urethral canula, or tube, also a movable lens intended for either long or short-sighted observers. At the other end (the distal) is a nozzle for fitting on the tubes. In addition to this is also noticed small perforations in the floor of the lantern immediately around the lamp, which are intended to carry off the heat. The urethral tubes are of different sizes, intended, of course, to be used in different size urethræ. The larger the tube used the more satisfactory will be the examination, and, if necessary, I do not hes-

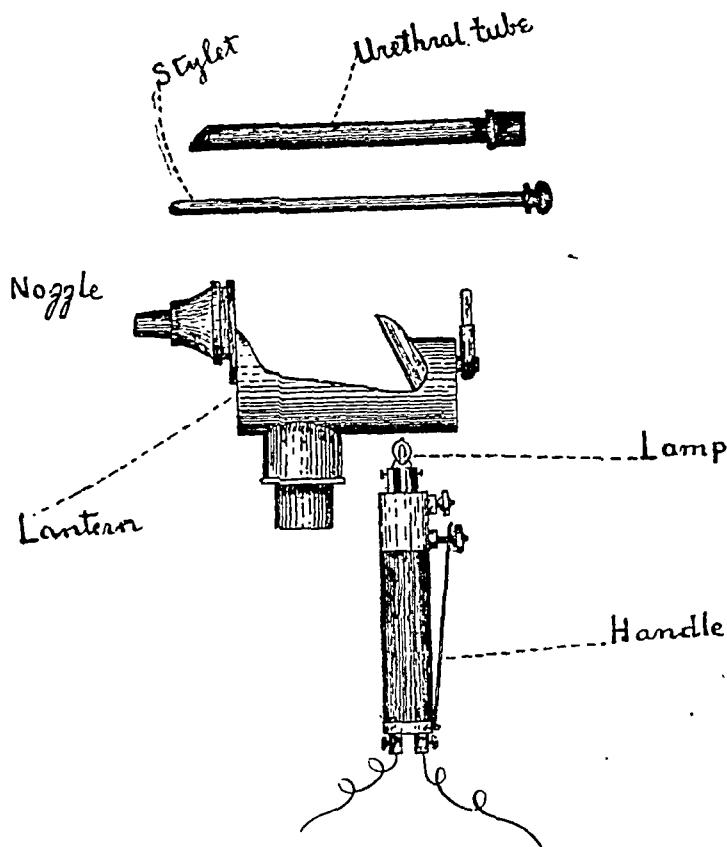


FIGURE I.

chronic urethral discharges, I have felt that it would be of interest to present my views upon the advantages offered by this instrument, at the same time illustrating my remarks by the citation of a few of the many cases I have recorded in my case-book.

to enlarge the meatus, which in most cases we find contracted, this, in some instances, relieving the patient of the trouble of which we are trying to learn the nature by the urethroscopic examination. The nearer the size of the tube approaches the normal calibre of the urethra, the

less likely are we to overlook a fold which may be the seat of a small patch of disease. The mirror is to be so adjusted as to reflect the light along the tube.

The construction of this instrument is so simple that it very seldom gets out of order. The most delicate part is the lamp, which after being used some time requires changing, as it is apt to become blackened. This is done by simply removing the handle and loosening the two small screws holding the lamp in place, when the lamp is lifted out and replaced by another, care being taken to secure it by tightening the screws. The handle is then replaced and fixed. In adjusting the lamp care must be taken to have it at a proper level, otherwise there will be insufficient illumination. To avoid all annoyance it is best when inserting the handle into the lantern to light the lamp and test the amount of illumination by placing the end of the urethral tube, adjusted to the nozzle, against a dark surface, when by elevating or depressing the handle the proper level can be obtained.

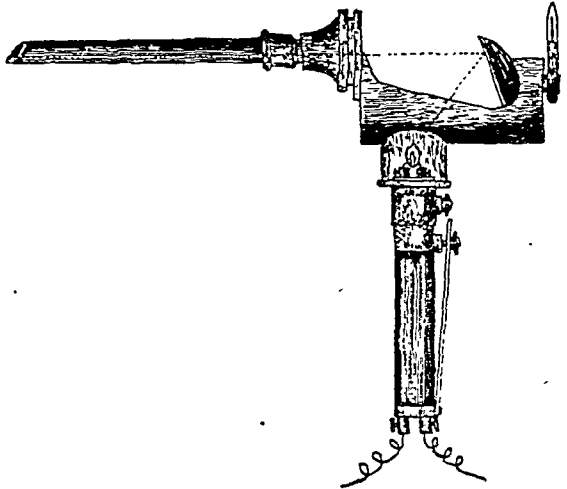


FIGURE 2.—Urethroscope ready for use.

The two forms of battery used by me in lighting the urethroscope, are the Julian storage system and the Grenet or plunge battery.

The Grenet or plunge battery, which I prefer, is made by Mr. Flemming, of Philadelphia, and consists of a box containing two equal compartments, the first of which is occupied by a series of rubber cells, one-half filled with the following solution: potassium bichromate, 6 ounces; sulphuric acid, 5 fluid ounces; water, 3 pints. This solution must be removed every two or four weeks, according to usage. The second compartment contains one large cell, the object of which is to catch the drip from the plates after their removal from the bichromate bath, and also to protect them.

These two compartments are covered by a bed, the under surface of which is divided into two equal parts, one-half being covered by a sheet of rubber, to close the cells when not in use, and the other half occupied by a number of sets of plates. Each set is composed of two carbons and one zinc-plate, which are fastened to the bed in the usual manner, and so connected as to have independent action, the number of cells being thrown into circuit as required. After using the battery and wishing to discontinue the current, it is merely necessary to lift out the plates, change sides and deposit them in the one large compartment.

Upon the upper surface of the bed are a number of binding posts corresponding to the number of cells employed, and by attaching the cords in a proper manner the number of cells desired can be brought into circuit. On this surface there is also a rheostat consisting of a rubber plate wrapped with silver wire, connected with the cells and having a swinging arm which can be moved to any part of the plate; the object of the rheostat I will speak of later.

The other form of battery used by me is made by Waite & Bartlett, of New York, and consists of a carrier or box, containing four large storage-cells, each of which is composed of a rubber cup, a series of carbon and lead plates not in contact with each other, and containing a dilute solution of sulphuric acid which must be replenished from time to time. The materials used to connect these cells are narrow plates of lead, which are not acted upon by the sulphuric acid solution. These cells each measure two volts, and on increasing the voltage it is necessary to use a rheostat for reasons mentioned below.

There are two objections to the general use of the storage system. First, it must be charged from a dynamo, and second, its weight (from 90 to 100 pounds,) renders it inconvenient to carry.

The object in using a rheostat is to govern the current, to prevent burning out of the lamp, and to measure the exact resistance of the lamp. It is a well known fact that the carbons vary greatly in different lamps. In some the resistance is high, and such only burn when the rheostat is at its minimum; in others the resistance is so low that the lamps will not burn with a white light except when the rheostat is at its maximum.

Manner of using the instrument.—In using the instrument the position of the patient which I have found most satisfactory is the recumbent one, on a table or couch of considerable height, with the knees bent over the edges and slightly separated. The largest tube which the meatus will admit is now introduced, and passed gently through the urethra to the bulbo-membranous junction, unless obstruction is met with, when the stylet is withdrawn, the urethroscope ad-

justed, and the obstructing point examined. Great care is to be exercised in passing the tube, as it may induce bleeding, thus obstructing the field of vision. Where we are dealing with a much inflamed urethra, we will necessarily be annoyed more or less by a few drops of blood, and when this occurs it can be gently removed by a pledget of cotton carried down the tube by the applicator. In case the pendulous urethra is found normal I carry the tube into the membranous urethra by depressing the proximal end, and in this way examine the deep urethra.

Normal appearance of the urethra.—When at rest the walls of the urethra are closely approximated and the lumen varies in shape at different parts of the canal.

Commencing at the bulb and extending to within an inch of the meatus, the lumen is transverse or slightly oval; in the remaining portion it is either vertical or triangular, and at the meatus, vertical. The color of the mucous membrane varies from a pale bluish pink to a full, bright pink; generally it is very similar to the buccal and labial mucous membrane in the same individual. The brilliancy resembles that of the mouth. On slowly withdrawing the urethrosopic tube, the walls of the urethra will be seen to contract behind it. One of the most important characteristics of the healthiness of the spongy urethra is the evenness with which its walls will contract behind the retiring tube, or expand when it is advanced. A limited thickening in a small area will cause them to approximate irregularly. A scanty secretion of pus will destroy the lustre of the mucous membrane.

The lumen of the membranous urethra at the sight of the anterior layer of the triangular ligament, is triangular, which is due to the walls being less elastic than in the spongy portion; elsewhere it is oval. Owing to the presence of the urethral crest (*verru montanum*), the lumen of the prostatic urethra is crescent shaped.

All discharges, chronic in character, of the male urethra have been from time immemorial, and still are, known by the name gleet. The opinions advanced as to the pathological conditions present in gleet in the absence of a well marked stricture have been various, and not till recently has the proper aspect been given to these cases. The proper understanding of these conditions is solely due to the use of the urethroscope, which has been so perfected as to make the examination of the urethra, particularly the pendulous and terminal portions of the prostatic, as satisfactory, and in every sense as reliable, as is the examination of the eye-ground with the ophthalmoscope.

I believe, as does Professor Otis, that in the great majority of cases of gleet, one, and in some instances, more than one stricture is present, which, when situated in the pendulous urethra,

the usual site, can be most satisfactorily demonstrated by the urethral meter, and that the removal of the stricture by dilating internal urethrotomy will cure the greater number of such cases. I also believe that the minority of the cases are not the result of stricture, and can be correctly diagnosed, and thereby successfully treated, by the use of the urethroscope. It has been my experience to see a few cases, where, after a complete dilating internal urethrotomy, the discharge continued, though not to as marked a degree as before the operation, and where cure has promptly followed a few applications made to the affected portion of the urethra through the urethrosopic tube; also in cases where internal urethrotomy is practiced I am able to hasten the cure by local applications.

What are the varieties of gleet (meaning any chronic urethral discharge) met with and clearly demonstrated by those who practice urethroscopy?

In my experience with the use of this instrument I have been able to demonstrate the following varieties of chronic urethritis:

1. Simple chronic urethritis consisting of three different forms; one where the surface of the urethra is uniformly livid and moist; a second where, in addition to the above, are circumscribed areas involving the deeper portion of the urethra (the sub mucosa), resulting in the formation of nodular masses, slight, yet easily demonstrated by the absence of the normal elasticity of the urethra; and a third, where there are circumscribed areas presenting a granular surface, covered, in many instances, with adherent pus readily bleeding at the slightest touch, and most probably that variety of urethritis described by some authors as granular.

2. Follicular urethritis where the inflammatory process is confined to the simple follicles, lacuna magna, in some cases to the ducts of Cowper's glands.

3. Ulcerative urethritis, never present except when associated with stricture, the treatment of which calls for division of the stricture (dilating internal urethrotomy), and local applications made to the ulcer or ulcers made through the urethrosopic tube.

It is not uncommon to meet with two or more of the above conditions in the same case.

In the absence of the urethroscope, to ascertain the exact pathological condition which is keeping up the discharge in a large number of these cases, at least, is impossible. I have made the statement that, in my judgment, by far the greater number of such cases, are the result of stricture; but even so, a urethrosopic examination properly made tells us the exact condition of the urethra, both behind and at the strictured portion. The cases which I will now cite demonstrate the advantage of the instrument in the way of treatment.

Case 1.—J. D., aged thirty-eight, was admitted to the surgical wards of the Philadelphia Hospital, in February, 1890, complaining of a purulent discharge from the urethra, with pain upon micturition. History of gonorrhœa for four years, followed by stricture. Was operated on in the winter of 1889, at Bellevue Hospital, by Dr. Keyes. Urethroscopic examination revealed a small ulcer, one eighth of an inch in diameter on the floor of the pendulous urethra immediately in advance of the bulbo-membranous junction. A solution of silver nitrate, 10 grains to one ounce, was applied through the urethroscopic tube by means of the applicator. Two more applications at intervals of three days, were made, when the ulcer was entirely healed, resulting in the relief of all symptoms. The patient was kept under observation for one month, when he was discharged cured. This ulcer was evidently the result of the stricture, but, unlike it, was not cured by the internal urethrotomy, which, I believe, would often be found to be the case were a careful urethroscopic examination made in many of these cases where the discharge is still present.

Case 2.—C. D.; private patient; came under my care some months since, with a history of gleet of two years' standing. During this time, he says, he had several attacks of gonorrhœa immediately following connection; these were evidently not attacks of true gonorrhœa, but simply aggravations of the existing urethritis, the result of the venereal act. Examination of the deep urethra with a *bougie-la-boule*, and of the pendulous urethra with the urethra meter, revealed the absence of stricture. This examination was followed by some bleeding. Urethroscopic examination revealed chronic urethritis, with three distinct granular points on the floor of the pendulous urethra, $2\frac{1}{2}$ inches anterior to the bulbo-membranous junction. The granular patch nearest the meatus bled freely when touched.

Four applications of a 20-grain solution of silver nitrate was made at intervals of five days. In addition to the application of silver solution, the patient used the following injection four times daily: sulphur-carbolate of zinc, 12 grains; sulphate of morphine, 4 grains; distilled water, 4 ounces. At the end of three weeks, all symptoms having subsided, treatment was suspended. The patient reported two weeks later, when a urethroscopic examination showed the urethra to be normal.

Case 3.—W. H.; private patient; came to me suffering from a chronic urethral discharge of four years standing, as a result of a very severe case of gonorrhœa. Three years ago he was examined by a genito-urinary specialist, who found a stricture of large calibre in the pendulous urethra. This specialist cut the stricture by dilatation internal urethrotomy, since which time the

patient has been passing, at stated intervals, a No. 36 (French scale) bougie. During the past three years, the patient states, he has had several attacks of gonorrhœa of a mild type, but these were evidently attacks of so-called bastard gonorrhœa. Examination for stricture showed the urethra to be normal throughout. Urethroscopic examination of pendulous urethra was negative, except at the point which had been the seat of the stricture; here there was an absence of the normal elasticity, particularly well marked on the floor, but otherwise normal. Examination of the membranous urethra showed mucous membrane or the anterior part of the floor to be dark red and presenting a distinctly granular area, bleeding upon the slightest touch. In the light of this examination, I made instillations, of five minutes each, of a 20-grain solution of silver nitrate, six in all, into the deep urethra with the Ultzman drop-catheter, at intervals of three days. This treatment not proving satisfactory I brought into the field of vision the granular area, and made two applications through the urethroscopic tube, this sufficing to accomplish the desired end. Some weeks since the patient wrote me that he was well.

Case 4.—G. G.; private patient; contracted his first attack of gonorrhœa in 1883. It ran through the three stages, and had all the characteristic symptoms of genuine acute urethritis. The treatment consisted of balsam of copaiba internally and various injections; it lasted four months. In 1884 he contracted a second attack, which did not differ from the first, excepting that it lasted six months. In 1886 he contracted a third attack, which was by no means as pronounced as either of the previous. He had merely a discharge which differed from that of the attacks in being thinner and whiter. The treatment was internal only, and consisted of paste of balsam of copaiba and of cubebs, for two weeks. He did not have connection nor did he drink any spirituous liquors for one month after the discharge stopped; when having transgressed from the path of virtue, upon the day following he had a return of the discharge. There was neither pain nor discomfort other than that occasioned by the presence of the discharge. He was again treated by balsam of copaiba internally and by injections, but not improving as rapidly as his medical attendant thought he should, the systematic passage of steel bougies in connection with the above treatment was begun. The medication was continued until the patient's stomach would no longer tolerate the balsam, when it was omitted, the bougieing and injections being persisted in. Three months from the institution of the treatment the patient remaining abstemious, there was still enough discharge to make him despair as well as seek other advice.

In July, 1888, I was consulted, and examination then showed a slight gleet discharge. Calibre of urethra 36 millimetres. Stricture $3\frac{1}{2}$ inches within the meatus, calibre 34 millimetres. At this time not having a urethroscope with which to make an examination of the urethra, I believe the discharge was caused by the stricture of large calibre present. I advised the passage of solid bougies and injection brou (French formula), hoping in this way to restore the normal condition of the urethra. This treatment was used faithfully for five months. In December, there being no longer any discharge, I stopped passing bougies and discontinued the injection, which had been changed from injection brou, several different formulæ, having been used. I advised that a No. 35 solid bougie be procured and passed once a week for some time.

In August, 1889, I was again consulted for an epididymitis of left testicle, following the passage of the bougie. This attack of epididymitis confined the patient to the house for one week, when the discharge again returned. As soon as the epididymitis had cleared up I examined the urethra with urethral meter, finding it trespassed upon to a little less than one millimetre at site of original stricture. Examination of urine showed presence of a few pus corpuscles and some shreds of mucus. Examination of prostate through rectum was negative. Believing the cause of the trouble to be chronic inflammation of the deep urethra, I used instillations of solution of silver nitrate, varying in strength from 10 to 20 grains to the ounce, using the Gross instrument. In a very short time the discharge disappeared only to reappear after taking a glass or two of beer. In the fall of 1889, a urethroscopic examination showed the cause of the trouble to be chronic urethritis with granular areas in the membranous urethra. Treatment like that I have detailed proved in a short time entirely satisfactory.

The citation of these four cases, I think, is sufficient to support what I have intended to convey by the title of this paper.

In addition to the value of this instrument in the diagnosis and treatment of chronic urethral discharges, I desire to call attention to what, by its use, I believe I have demonstrated to be a cause of failure in obtaining a cure in a certain number of cases of stricture operated upon by divulsion, and which I think is an argument in favor of dilating internal urethrotomy (the operation I strongly advocate where it is feasible), and cannot result from the cutting operation, if properly done. I refer to tabs or teats of mucous membrane which have been separated at the time of the divulsion; and by bougieing, the union of these tabs to the surface from which they were torn has been prevented. In two cases coming under my care recently I have found the following conditions as here shown in the diagrams:

This condition, in my judgment, granting that all of the strictured area has been removed, is quite sufficient to keep up a discharge.

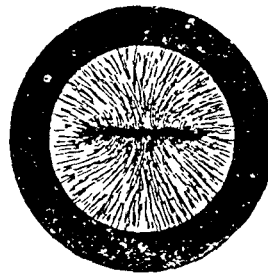


FIG. 3.—Normal Urethra.

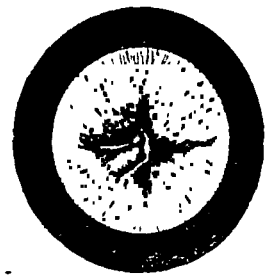


FIG. 4.—Teat-like prominence of urethral mucous membrane.

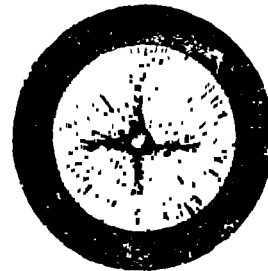


FIG. 5.—Same as 2. Point of prominence showing in the centre.

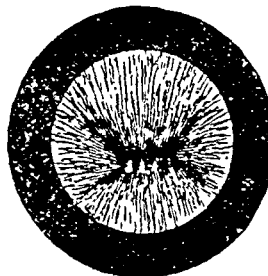


FIG. 6.—Multiple projections of mucous membrane into the urethra.

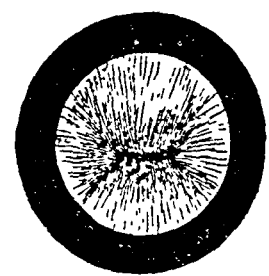


FIG. 7.—Multiple small projections into the urethra. Same as Fig. 6. Tube partly withdrawn.

The routine treatment of cases of chronic urethral discharge is by injection, soluble bougies, the systematic passage of solid bougies, and internally by the administration of stimulating blenorhagics, until the patient's stomach will no longer tolerate them, and with, in many case, little or no effect. It is evident to all that this form of treatment will no doubt modify the condition and will cure a few cases. The advantage offered by the treatment advocated in this paper is, that we are with certainty able to deal with the diseased point or points, it being necessary in only a few to trespass upon the prostatic urethra proper, which is always done in the ordinary routine practice of introducing the bougie into the bladder, thereby exposing the prostate gland to injury, as well as endangering the patient to an attack of epididymitis.

THE general meeting of the German-speaking Cremation societies is to be held this year at Frankfort-on-the-Main, on the 27th inst.

SOME POINTS ON TRACHEOTOMY.¹

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Imperative tracheotomy for foreign bodies or for rescue from impending death from disease, has ever been the dread of the practitioner, hence when Dr. O'Dwyer invented an apparatus for tubing the larynx, supplanting the operation in many cases, his suggestion was received with enthusiasm, and deservedly so; still there are conditions in which the trachea must be opened. For foreign bodies it is the only relief, and in cases of extreme emergency from disease, where the patient may die before the mechanical appliance can be procured. This dread of tracheotomy has arisen from the fact that most authors have invested the operation with great dangers, surrounded it with serious complications, such as unavoidable hæmorrhage, wound of the great vessels at the base of the neck, injury to the adjacent cervical arteries and veins, strangulation during the process, bleeding from the wounded isthmus of the thyroid, wounding the œsophagus by transfixing it and the trachea with a mistaken plunge of the knife, "working in the dark," finding the vertebral column instead of the tracheal tube! It is hard to conceive that such accidents have attended the operation, nevertheless, the student will find frequent reference to such mishaps, and he is warned by authors against them.

Doubtless these complications may occur in efforts to open the trachea below the isthmus. An inexperienced operator follows the advice of the author which he is in the habit of consulting; he encounters a hypertrophied isthmus, to get below which he finds himself at the base of the neck, where the great vessels often cross; a fatal hæmorrhage may occur even from a careful use of the knife. The isthmus may not be enlarged, but an anomalous position of the arteries or veins, or their branches, may be encountered; they are in danger of being wounded.

IS IT A DANGEROUS OPERATION?

The earlier writers and many of the more recent speak of the operation as one of the most hazardous, why? With ordinary anatomical knowledge and average skill it may be made a perfectly safe proceeding, and with scarcely the loss of a spoonful of blood, if the proper location is selected, and after the skin is divided, a blunt instrument takes the place of the knife.

Velpeau, "Operative Surgery," in discussing tracheotomy and the dangers which sometimes attend it, says: "If during the operation venous hæmorrhage should be too abundant and resist the ordinary means, we should not get alarmed

and in our fright abandon the patient, as Ferand did in a similar case." He was speaking of a hæmorrhage which occurred whilst he was attempting to insert a canula.

Trousseau speaks of the dangers of a too "nimble tracheotomy," referring to a careless mode, but when he says, "if the isthmus of the thyroid body presents itself under your bistoury, never hesitate to divide it in the mesial line." This advice, followed in some cases, would lead to results as disastrous as the most "nimble tracheotomy." The treatment of the isthmus, as will be seen farther on, is one of the most important considerations in connection with reaching the trachea. In a case which I saw some years ago with Drs. T. N. Wise and R. Pretlow, of Covington, Ky., the isthmus was so hypertrophied and fixed in its position that we were compelled to ligate on both sides before venturing to divide it; we then had a dry way to the trachea.

Holmes says, "tracheotomy is the most dangerous of all operations for the relief of children."

Gross' remark on tracheotomy, in which he affirms, that, "I know hardly an operation in all surgery that I would not rather undertake than this," has, doubtless, unnerved the arm of many an inexperienced practitioner.

Bryant writes, "tracheotomy is by no means a simple operation." He advises deliberation and refers to cases in which, from the embarrassment of the operator, the innominate and carotid were injured, the œsophagus opened through the trachea; and he has seen both the trachea and œsophagus transfixed and the knife sunk into the vertebral column! Accidents, such as the latter, wounding the œsophagus and vertebra, may attend the use of a broad-bellied knife—the rings being dense, resist division; when they yield, if the operator should not control himself, by mere force or weight the instrument is carried through both walls of the trachea and œsophagus and into the vertebra. The injury to the vessels may occur from, as we shall see, making "the low operation."

Holmes in his surgery, "Principles and Practice," under the term "bronchotomy" describes opening the windpipe in three different places, "between the cricoid and thyroid cartilages, above the thyroid isthmus and below it." In attempting the latter, *i. e.* below the isthmus, he frankly admits that, "I once lost a patient from wound of a branch close to the innominate vein." Many surgeons at the present do not attempt this operation, especially when it is so easy to dispose of the isthmus and thereby prevent the hæmorrhage which may follow its division. In speaking of hæmorrhage passing into the windpipe after the incision, one author advises that "the patient be instantly turned on his face and it will run out again." Usually the blood which

¹ Journal of the Medical College of Ohio.

enters the trachea when an artificial opening is made, is promptly expelled and with great force, coughing, in fact, is rather beneficial; both in cases where the operation is made for disease or for a foreign body, the expulsive efforts are what are required, the more bronchial irritation the better.

Stephen Smith in his work on "Operative Surgery," says, "tracheotomy may be performed above, through or below the thyroid isthmus, the latter place gives more room for the canula and is to be preferred."

Agnew advocates a high incision, beginning with the second ring, and that where the isthmus obstructs the way it must be secured on each side, and the trachea divided between the ligatures.

Frank Hamilton describes a high and a low operation, but prefers the former.

Christopher Heath, like the last author, describes two operations, one above the other below the isthmus.

Victor Horsley, "Manual of Surgery," suggests, that if the isthmus be in the way, it be drawn downward with a blunt hook, a proceeding, by the way, not always possible.

Arthur E. Durham, in Holmes' System of Surgery, while favoring the operation below the isthmus, attributes these fatal accidents to "gross carelessness or utter loss of presence of mind." . . . "But in the next sentence he admits that the innominate may cross the trachea higher than in the normal arrangement."

Ashhurst, "Principles and Practice of Surgery," prefers the lower operation, and advises that the isthmus be divided and ligated, yet he says "the chief danger from tracheotomy is from hæmorrhage," and refers to cases "in which the carotid or even the innominate artery has been wounded." Could such accidents have occurred if the operator had confined himself to the upper and middle portion of the trachea?

Erichsen, "Science and Art of Surgery," speaking of the anterior jugular veins, says, "a branch often crosses the line of the tracheotomy wound." He also says, "the carotid arteries are also in close relation to the trachea on each side, being especially in danger at the lower part of the neck. Opposite the episternal notch the windpipe is crossed by the left innominate vein. . . . It will be seen also that the trachea is less covered and may consequently be much more readily reached above than below the isthmus of the thyroid gland." A wise precaution is contained in this last sentence.

It will be seen that no uniformity exists with the surgical authors who have written upon this important operation, an operation which every practitioner, in emergency, may be called upon to perform, there being no surgeon within reach. I feel safe in affirming that it is really one of the

safest, simplest and most easily performed of all the great surgical operations. It is not strange that the inexperienced hesitate when they read of the dangers, of the many fatal accidents which are described by the masters as having occurred. The safety and simplicity of tracheotomy depends on the location selected and the manner of reaching the trachea. The low operation, that is the operation below the isthmus, should not be attempted for two reasons. (1.) The trachea at its lower portion (it takes an oblique direction from above downward and backward) is deep seated, often being two inches from the surface, even in children. (2.) The proximity of the large vessels which cross the trachea at the base of the neck.

WHAT IS THE BEST LOCATION?

Most surgical authors, as we see, speak of and give directions for two operations, one above, the other below the isthmus of the thyroid, when practically there should be but one, or at least but one should be attempted, and that is in the upper and middle portion of the trachea. Bryant has well said, "the nearer the tracheal opening is to the cricoid ring the better." Why talk about operating below the isthmus when a moment's reflection will show that the work will have to be made in the neighborhood of important vessels, a wound of which would be disastrous. In the history of tracheotomy wrecks are numerous in this region, the study of these, "like a meditation upon death," has deterred many. The reader, contemplating the procedure, is warned to be careful not to wound the carotid, the innominate artery or veins. What a blood-curdling thought that of wounding the carotid! Is it any wonder that even the possibility of such an accident should destroy the average appetite for throat surgery, and induce the attendant to trust his patient to a higher power? What are the facts? The carotid and accompanying jugulars are upon lines outside, and the great vessels which cross the trachea are safely below the upper and middle portion of the tube, where alone the operation should be attempted.

Erichsen speaks with great care and warns against wounding the carotid. He refers to one case in which a branch of the innominate was wounded.

An author, *Medico-Chir. Trans.*, 1882-1883, mentions mediastinal emphysema as following a tracheotomy. Holmes reports a case where the vertebral column was struck, but the trachea escaped.

THE THYROID ISTHMUS.

The significance of this structure in connection with tracheotomy should not, as we have suggested, be underestimated. In some instances it is so frail, a mere film, that it may be ignored, again it presents itself as a vascular, immovable

band, while in a minority of cases it is found hypertrophied, very vascular and fixed in its place. Mr. Bryant certainly does not give it sufficient importance when he says, "I have gone through the isthmus of the thyroid and have never had cause to regret it, nay, I am almost tempted to believe that the damages of its division are really theoretical and practically may be disregarded." This may be true when the isthmus is a mere film, or when it is movable, but when it is flush with distended vessels, the inexperienced who cuts it will be fearfully embarrassed. With all due deference to our eminent English author I venture to say, that such advice is dangerous, and that when the operator's knife enters a hypertrophied isthmus and the blood gushes forth the "flesh quake" which may seize him will not be soon forgotten. Is the isthmus of the thyroid gland an element of constant danger? This question has been answered negatively. If it be hypertrophied it can be ligated on either side and divided, if of ordinary size it can be pushed up or down, out of the way of the knife, or if it be a mere film, as it is usually found in children under 5 or 6 years of age, it may be disregarded.

HOW TO OPERATE.

Tracheotomy for disease or for the extraction of a foreign body should be governed by the same rules and principles. A young physician takes up a work to study the anatomy of the trachea; he is gratified to find so few blood-vessels between the skin and that tube, but in the first operation which he attempts, he will be greatly astonished at the hæmorrhage which follows his knife, as he makes incision after incision from the skin to the tube. If the operation be made for croup, diphtheria or inflammatory obstruction of the larynx, or frequently for a foreign body, he will find the superficial vessels enlarged and engorged; as they are divided, the hæmorrhage is so profuse as to be fearfully embarrassing. Can this hæmorrhage be avoided? To a very considerable extent it can. If the skin be transfixed instead of cut from without inward, and a blunt instrument used to move the connective tissue, in which the engorged vessels are found, out of the way, but little hæmorrhage will follow. In this manner Mott exposed the arteries in his great operations for the relief of aneurisms.

HOW TO REACH THE TRACHEA WITH SLIGHT LOSS OF BLOOD.

This is the important question. Take up a fold of the skin, let an assistant hold one side, then with a sharp-pointed knife, curved the better, transfix this skin from below upwards. If possible, make this first incision sufficiently long; it should extend from the episternal notch to and above the cricoid. A liberal incision through the skin gives great ease in reaching the trachea.

This first incision carries the operator into the cellular tissue, and this connective structure may, with a steel director or a blunt instrument, be literally scratched out of the way, until the median muscular division is in view. With the same use of the blunt instrument the muscles may be separated and the rings of the trachea exposed, after disposing of the isthmus, if it be more than a mere film, by pushing it up or down. If, however, it be enlarged or vascular, its treatment has already been indicated. In this "dry dissection," as called by Mott and Hamilton, the fascia is occasionally so unyielding that it may be necessary to incise or nip it slightly, but very slightly. Up to this point a very small amount of blood has been lost. Now, by the continued use of the blunt instrument, the trachea may be exposed fully and freely, so that an opening can be made in it from five-eighths to one inch or even more. With a liberal incision in the skin and a free use of the director the operator will never be embarrassed by "working in a well," as some writer describes it. It should not be forgotten that here, plenty of room is a *sine qua non*.

How to open the trachea? It is not necessary to hold it with a pair of forceps, as suggested by one author, or transfix it with a sharp hook, or seize it between the thumb and finger, but insert the same sharp-pointed, curved bistoury with which the incision through the skin was made, between two of the lower rings and cut upward. The knife steadies the tube sufficiently and the incision can be made while the forceps or hook are being adjusted. It is by using a broad-bellied knife that operators, as heretofore said, in using force, have transfixed the posterior tracheal wall and have passed through the œsophagus into the vertebra. Hardly excusable.

HOW IS THE OPENING TO BE KEPT PATULOUS?

Often a vital question, in diphtheria, croup, œdematous laryngitis and occasionally where foreign bodies are not promptly expelled, it is necessary to keep the opening free. For disease a number of tubes have been invented, and from the fact that all have proved unsatisfactory, many surgeons have suggested modifications or invented new ones. Some years ago an American surgeon, Dr. Brainard, of Chicago, proposed putting a ligature in the trachea on each side of the incision and fastening the ends at the back of the neck. In this way the opening can be kept free and this expedient is in most cases vastly superior to the tube. For an emergency, such as an operator recently encountered, ("Tracheotomy Under Difficulties," H. Harvey Norton, L.R.C.P., M.R.C.S., *British Medical Journal*, May, 1890), Dr. Brainard's plan would have been of great advantage. His patient, "a fishmonger, æt. 30," was approaching collapse, produced by

acute laryngitis, "lips and extremities blue, pupils dilated, conjunctiva insensitive, breathing stridulous, ribs drawn in during inspiration, pulse scarcely perceptible, in fact at the point of death. There was evidently nothing for it but tracheotomy." . . . "But as the man was every moment becoming worse I found I could not wait for the arrival of the tube and was at my wits' end for a substitute, till having examined all the available pipe stems and found nothing suitable I suddenly thought of a quill toothpick." He had to hold it "in position for an hour." This answered until the arrival of a tube which he inserted.

FOR FOREIGN BODIES.

Occasionally a foreign body, such as a grain of corn, becomes so lodged in one of the bronchial tubes that the most violent paroxysms of coughing fail to dislodge it, nor can it be reached by forceps? Under such circumstances what is to be done? How can the way be kept open? The two cases which follow will answer the question.

Case 1.—A grain of corn coughed up after the tracheal opening had been kept patulous for forty-eight hours.

During the last few weeks a child, about 2 years old, was brought to my office, said to have "a grain of corn in its windpipe." It was not suffering, but the father described its paroxysms of coughing during the past night as fearful, that he "could hear the grain of corn passing up and down." The child had had a severe spell of coughing that morning before leaving home, some twenty miles distant; since which he seemed better. The father indulged the hope that the offending substance "had been coughed up and swallowed." This was on Saturday morning; the child was not brought in again until Monday, when the father described the suffering during the forty-eight hours' absence as "very great at times." We inverted the child, attempting in this way to provoke coughing, we evoked one fairly hard spell during which the father was sure he heard some substance passing up and down, I was inclined to agree with him, but as he held the child in his arms my opportunity was not so good as his. I advised the opening of the trachea. This was done without the loss of two teaspoonfuls of blood. A violent fit of coughing occurred, but no appearance of the foreign body. I probed the larynx and the trachea to the bifurcation and the bronchial tubes beyond. The larynx was irritated for its reflex influence in inducing coughing; I was sure the offending substance was not in it, for the little boy's voice was unaffected, this eliminated the larynx. If present, the grain of corn must be below in one of the bronchial tubes, the probe, however, failed to determine its situation. A ligature was passed through each side of the in-

cision and tied behind the neck, the way was thus kept open and the trachea irritated down to the bifurcation, occasionally during the twenty-four hours following, without effect. Another twenty-four hours elapsed, making forty-eight since the operation. The tracheal cavity was again irritated with the probe. After stretching the incision wide open by pulling at the two ligatures, several attacks of violent coughing occurred, when, at last, as I had about decided to keep the way open, if necessary, for another day, a spasmodic expulsive effort threw the grain out with great force; it was picked up from the floor! It had been in the air passage for nine days, and the trachea kept open for the latter forty-eight hours!

Case 2.—Trachea kept open for five days.

A few years ago I visited a boy in consultation with Dr. Barbour, of Falmouth, Ky. The patient was about 6 years old, and was said to have "half of a glass button in his windpipe." When I visited his father's house, he was seemingly comfortable, no cough or dyspnoea, but his parents described his suffering as very great whenever the foreign body would become dislodged; these paroxysms would occur several times in twenty-four hours, and were of a most alarming character. After a considerable effort (he was a boy not disposed to be imposed upon, he emphatically refused to be handled) I inverted him and, with his head down, I shook him over the room several times but could not dislodge the fixed glass button. After again having his sufferings rehearsed, I advised opening the trachea and keeping it open for an indefinite time, for a month, if necessary. I felt confident that his first violent fit of coughing would relieve him. On account of the weight of the glass his nurse was advised to place him on his abdomen when coughing, so as to get the advantage of gravity. On the fifth day it dropped upon the floor during an expulsive effort.

These cases emphasize, 1, the value of Brainard's suggestion. 2. The propriety of keeping the trachea open for an indefinite period.

The trachea, after being opened and kept open, as is often done where tracheotomy is resorted to for disease or obstruction, heals very readily; its ability for repair is remarkable.

The ligatures will often prove most satisfactory after the trachea is opened for diphtheria or croup. In many cases Dr. O'Dwyer's tube answers well, but in others tracheotomy will have to be resorted to. This distinguished surgeon by his invention has made both humanity and the profession his debtor. Dr. Charles Denison, of Denver, Colorado, in a paper read before the section of Laryngology and Otology, American Medical Association, suggests a valuable modification of Dr. O'Dwyer's instrument; it consists essentially in an improvement of the "Gag."

I quote from his paper: "A proper gag. My experience with the gag accompanying the first set sold of Dr. O'Dwyer's tubes, convinced me that a better means of getting and holding open the patient's jaw must be devised. The long handles being hit by the child's shoulder or some other part, thus disengaging the instrument, together with a bitten and poisoned index finger, settled the question for me, and I devised a simple two-armed gag, separated by a ratchet controlled by the thumb and forefinger, which has served very well in many subsequent intubations." For further description and illustration of Dr. Denison's addition to Dr. O'Dwyer's instrument, see JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, June 7, 1890.

RAPID TRACHEOTOMY.

Rapid tracheotomy must occasionally be made both for disease and for foreign body. The physician finds his patient in extremity; for rescue, relief must be given promptly. The following cases show the hazard which attend occasionally foreign bodies in the air passage.

Case 3.—A fragment of nutshell in the larynx.

A messenger came hurriedly for me one holiday morning; he informed me that a boy about 10 years old "had swallowed, the night before, a fragment of a nutshell." Supposing it to be in the œsophagus, from the time which had elapsed, about thirteen hours, I said, "why did he not come with you?" "Oh," he replied, "he can't get his breath." This convinced me that the obstruction was in the air passage. When I arrived at the residence he was lying on a bed in a dark corner of the room, his breathing consisted of gasping and not more than five or six in the minute, color livid, skin cold, pulse scarcely perceptible. We hurried him to a table opposite to a window and with great rapidity I operated; my assistants, Drs. McMechan and James, said that less than a minute was occupied. As soon as the trachea was opened his faint spasmodic gasps stopped, but by efforts at establishing artificial respiration and irritating the interior of the trachea, at last a slight inspiratory effort was made, then another, and another; soon the color began to return to his lips, his eyes opened and promptly respiration was fairly established.

Where was the nutshell? Not below, for the probe that I had so often passed down to the bifurcation, had encountered no hard substance; then, too, such a substance would not have caused such difficulty in breathing; had it been in one of the bronchial tubes, he would have had one lung free. Directing our investigations toward the larynx it was discovered, and with a pair of forceps removed.

The history of the case is singular and interesting. During the previous evening while eating a variety of hickory nuts a portion of the

hull passed into the larynx; it produced some coughing but no difficulty in breathing, the coughing soon subsided and at 8 P.M. he retired and went to sleep, but awoke at 3 A.M., sprang out of bed "struggling for breath." He soon became exhausted and was placed in bed. Physicians were called; one looked at him, at 8 A.M., five hours after he had commenced gasping, and said "he could not operate on a dying patient," gave him some medicine, or rather wrote a prescription, and said he would call again at twelve o'clock!!! This was about 8 A.M. I arrived between 9 and 10 A.M. and found his respiration made up, as heretofore said, of mere gasps.

Why was this boy so comfortable from the time the hull was inhaled, somewhat before 8 P.M. until 3 A.M., more than seven hours? The hull was flat, about the size of the nail of the little finger, it lodged in the larynx, and whilst it maintained an upright position, respiration and vocalization too, as it was below the cords, were not materially interfered with, but when it fell to a horizontal position it obliterated almost entirely the lumen of the cricoid, hence his struggles. It is marvelous that he lived so long.

Case 4.—A fragment of oyster shell in the larynx of a child seven months old.

I was called by Dr. Bishop, Jr., of Loveland, twenty-five miles distant, to see a delicate child seven months old, with all the symptoms of a foreign body in the air passage; it was in collapse. Its history, as had been learned by the attending physician, was, "one moment it had been well, the next its breathing was of the most alarming character." It had been left alone for a short time, nothing could be found which it could have put into its mouth, except that some fragments of celery were within its reach, and a small portion, it was supposed, had got into the windpipe. No time was to be lost, the little thing was livid and almost pulseless. The trachea was opened as rapidly as possible, it soon rallied by breathing through the incision. In looking for the embarrassing substance no trace was found below, but the probe encountered a hard substance above the incision and within the cricoid. With a delicate pair of forceps it was removed, and our surprise may be imagined, when we discovered a small fragment of an oyster shell. The family had had oysters for breakfast. The recovery of the little patient was uninterrupted, showing that the operation does not make a severe draught upon vitality. It is to be hoped that, as he grows in years and discretion, he will confine himself to the interior of the bivalve.

CONCLUSIONS.

I beg to state a few propositions:

1. Tracheotomy is our only remedy for foreign

bodies, and in cases of obstruction from disease where O'Dwyer's intubing apparatus can not be obtained, or in cases where intubing is not practicable.

2. The incision should be made by transfixion, and then the connective tissue treated by a blunt instrument or a steel director.

3. Where should the operation be made? In the upper or middle portion of the trachea; the reasons for this selection of location have already been given.

4. When the isthmus is hypertrophied or vascular, ligate it on either side and then cut it in median line between the ligatures.

5. What kind of knife should be used? A sharp, pointed, curved bistoury for both the skin and trachea. As already explained no hæmorrhage follows its use in dividing the skin, and in opening the trachea it steadies the tube and dispenses with the "forceps, hook, or thumb and fingers."

6. How to keep the way open? If a foreign body is not promptly expelled, place a loop of silk thread on either side and tie these ligatures behind the neck. So also in cases of disease where the tube does not act well Brainard's ligatures may be substituted.

ACUTE RHEUMATISM IN CHILDREN.

Read in the Section of Diseases of Children, at the Forty-first Annual Meeting of the American Medical Association, held at Nashville, Tenn., May, 1890.

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It is not my intention in this paper to enter into a discussion of all the etiological factors or the theories of blood changes occurring in acute rheumatism; neither can I offer anything especially new in the study of this disease; but I propose to outline the main points of interest which may arise in connection with acute rheumatism as observed in children, contrasted to those observed in adults.

The study of acute rheumatism in children comprises a far wider range of territory, and gives us a more complete conception of its nature, than in the cases of adults. The finely organized and delicate tissues of a child offer a more extended area for the distribution of rheumatic disturbances. Its pathological range is not limited to the fibro-serous structures so uniformly, but may also comprise the mucous membranes and the skin. The statement that acute rheumatism in children is a rare disease is not well founded; indeed, I am inclined to think childhood rather predisposes to it when accompanied with poverty.

Children, and especially those of the lower classes, are continually exposed to damp and

cold, which offers to them a factor in the causation of rheumatism, against which the adult is more careful to protect himself. Then, too, it must be remembered that the same causes act on the parents of these unfortunates, developing an hereditary tendency, and rheumatism is one of the most common of diseases to be handed down from generation to generation.

It is often the case to find very slight manifestations of the articular affection in the child, or none at all, but instead an inflammatory process going on in some sero-fibrous structure, as the endocardium, for example, that can be traced to no appreciable cause except exposure to cold and the consequent slight affection of some muscle, to indicate that the patient has developed a rheumatic diathesis; yet in these very cases one may find the direst lesions of the heart valves or pericardium.

A child may contract acute rheumatism at any age, but the greatest liability is between the fifth year and puberty. Cases occurring during this term are pretty evenly distributed. Many are recorded much earlier in life. Henoch cites one at ten months, Stäger one at four weeks. The earliest I have attended was one in a girl eighteen months old, where the inflammation of the knee joint was well marked; in this case erythema appeared.

Sex, contrary to the predisposition in adults, does not seem to have any significant etiological importance in childhood; there is a pretty even distribution between girls and boys. It is doubtful if there is any special type of complexion or temperament predisposing to an arthritic diathesis.

Acute rheumatism in children may be primary or secondary. It is secondary only to scarlatina or diphtheria. What the pathological processes are that influence the exciting of rheumatic tendency following these diseases, is uncertain; but it is not altogether uncommon to find joint affections attending scarlatina, and that these affections are not to be distinguished from acute rheumatism, inasmuch as they are liable to be complicated with endocarditis or pericarditis.

Exposure to wet and cold is generally considered the most prominent of exciting causes; and when taking into account the formation of lactic acid in muscular exercise and the naturally active habits of a child, it may become a prime factor in the production of rheumatism in them, especially when they are exposed to chilling influences after bodily exertion.

Dr. Haig-Brown, in the *British Medical Journal*, September, 1889, points out the similarity of the exciting causes of rheumatism and follicular tonsillitis. One is two extremes of weather, viz.: excessive damp and cold, with fog and northeast winds, and excessive hot and dry, with the humidity of the atmosphere at about 80, and of

course no fog; the other is the septic influence of poor drainage.

The post-mortem changes to be found in children with rheumatism differ greatly, according to the severity of the various local affections. The joints are oftentimes so slightly damaged as not to give those marked pathological changes so uniformly present in the adult. The synovial membranes may, however, be hyperæmic, and there is more or less effusion into the joint cavities and surrounding tissues. This effusion may consist of synovia, or serum containing blood corpuscles or leucocytes. Occasionally minute hæmorrhages in the more vascular portions occur. Rarely is there suppuration or ulceration of the cartilages. In children, commonly, one finds near the joint or tendons fibrous nodules, a condition similar to that found on the cardiac valves after rheumatic endocarditis.

Erythema may be manifested in the skin about the swollen joint and elsewhere, and there are often evidences of acute tonsillitis in the throat.

It has been my experience to observe in children a number of cases where the inflammatory process attacked the sheath of the muscle in preference to the fibrous structure of the joint. In these cases the extent of inflammation varied greatly; for the most part it would be confined to a muscle or group of muscles, and often would be accompanied with serious heart lesions. One recent case is fresh in my mind, that of a boy 8 years old. On exposure to wet and a chilling east wind he contracted acute rheumatism in the muscles of the calf of his left leg. It was swollen, hot and painful in the muscular portion, but not in the joint. In two days the inflammatory process had extended to every muscle in the body that was appreciable to the touch, and had invaded the pericardium. This boy died on the eighth day from date of exposure of acute pericarditis, and there was a rise of temperature after death for some hours.

The chief interest and danger in acute rheumatism of children lies in the extension of the inflammation to the heart. Endocarditis, pericarditis, and more rarely myocarditis, are pathological conditions generally found in autopsies on children dying from this disease; in fact they are principally the prime causes of death, as simple arthritic or muscular rheumatism tends to recovery.

It is out of the province of this paper to enter into a discussion of the morbid anatomy of heart disease, but it is generally found that in endocarditis it is the mitral valve that is the most frequently attacked and occasions permanent impairment of the cardiac functions, while lesions of the aortic valves are more liable to produce sudden death. Occasionally we may find an inflamed pleura, and even a pneumonia, associated with and dependent upon an attack of rheumatism, and instances of meningitis are not rare.

The symptomatology of acute rheumatism in the child varies according to the extent and severity of the inflammatory processes and the structures which they invade. Compared with this disease in adults there are scarcely any of the more prominent symptoms to any great extent, and those we are accustomed to credit as complications or sequelæ in them appear in the child as chief or initial manifestations. Thus, arthritis in children is at its minimum, while endocarditis or pericarditis is at its maximum of intensity; indeed, the latter may appear before any more characteristic symptom of rheumatism is observed. Then, too, a tonsillitis, pleurisy, or possibly chorea may appear as the more prominent symptom early in the attack.

Generally the commencement of acute idiopathic rheumatism is abrupt. There is a distinct recollection of the date of exposure, and this may be followed by some soreness and stiffness in the muscles or joints affected. There is redness, heat and swelling in the locality of the inflammation, and the affected limb is very painful on moving. As the inflammatory process abates in one joint or group of muscles, it reappears in some other, unless the morbid principle has in the meanwhile been eliminated from the system. Ordinarily the joint symptoms continue two or three days before attacking a second articulation.

The temperature of acute rheumatism in children does not run high—seldom more than 102–103. There are cases on record of hyperpyrexia in this disease, but they are of rare occurrence. This is perhaps singular, because it is contrary to the general run of fevers in childhood. The febrile movement does not last more than two or three days.

Sweating in rheumatism is slight in children, as compared with the profuse acid perspiration of adults, and in consequence is not so sour-smelling.

It is in childhood that heart disease plays the most prominent and important part in acute rheumatism. Endocarditis is almost sure to follow joint affections, and often it may be the sole expression of the rheumatic state. It is generally confined to the left side of the heart, the mitral valve being the most frequently attacked, although it is common to find both aortic and mitral involved in the inflammatory process. It occurs in a relative proportion of 72 to 46 per cent., as compared with endocarditis of adults in acute rheumatism.

The endocarditis, as a rule, is of a subacute variety, and is prone to assume a relapsing character. The first or early sign is a soft, blowing murmur, indicative of a primary attack. This may disappear in a few weeks, but oftener increases in distinctness and becomes a loud, harsh murmur, heard, if the mitral valve be affected, loudest at the apex. Another cardiac sign in-

dicative of the development of endocarditis is the reduplication of the second sound, audible at the apex only. This is to be distinguished from a similar reduplication heard at the base, sometimes as a result of Bright's disease, sometimes as the consequence of pulmonary obstruction. Occasionally this reduplication is accompanied by a diastolic murmur indicating mitral stenosis, and is a certain evidence of endocarditis.

Pericarditis is more common in children, during an attack of rheumatism, than it is in adults, and nearly as much so as endocarditis, to which it bears resemblance in its manner of onset and continuance. It is regarded by some as less liable to occur in a primary attack of acute rheumatism in childhood. It is generally subacute, and is to be distinguished from endocarditis mainly by the friction sounds, the increased præcordial dulness, and rapid respiration and pulse rate.

Pleurisy is not a rare manifestation of acute rheumatism, is usually found on the left side, and may be secondary to pericarditis; but when it occurs alone, followed by arthritis, it is to be considered as a direct expression of the rheumatic diathesis.

Peritonitis has been occasionally observed and meningitis found existing in a certain proportion of rheumatic cases.

That the same causes act to produce tonsillitis as acute rheumatism, has been mentioned; hence, taking this view of it, there is little wonder that tonsillitis occurs during the course of rheumatism, or may usher in its initial stage. Rheumatic sore throat has long been recognized as a prominent symptom in children; indeed, it is not uncommon to see a child come into the dispensary with enlargement of the tonsils, having previously had attacks of rheumatism. Statistics show that tonsillitis occurs as a primary symptom of the rheumatic diathesis in 24 per cent. of cases.

Bronchitis and pneumonia may occur as symptoms of the rheumatic state, but more rare.

Erythema in some form is a pretty constant concomitant of acute rheumatism in children. Since commencing this paper I have seen a case that, save for the inflamed wrist joint and the mild fever, might easily have been taken for some exanthematous disease.

In a certain number of cases a neurotic tendency is manifested; chorea, with or without emotional excitability, is the form predominant. The preponderance of cases is in girls in a ratio of three to one, as compared with boys.

When thrombosis or embolism occurs, as they rarely do in connection with heart disease, a serious source of danger is manifested.

Delirium supervenes in a certain number of cases, probably due to the action of rheumatic virus on the nerve centres.

Anæmia is a common accompaniment of the rheumatic diathesis in children, and is especially

well marked in cases where there is serious heart trouble.

There is one condition which is more prone to occur in children than adults, namely the development of fibrous nodules in connection with this disease. These nodules are found in the neighborhood of joints and tendons, are not painful, but may assume the size of an almond, they appear in successive crops or singly.

Regarding the diagnosis of acute rheumatism in children there is little to say; most cases are self-evident. There may be room for confounding it with scrofulous arthritis, but the latter would be more chronic, less indurating and symmetrical about the joint.

When endocarditis arises in the child, there is strong presumption that it is rheumatic in origin. From fifty to eighty per cent. are said to be traceable to rheumatism, and if it be accompanied by a rheumatic train of symptoms, as chorea, fibrous nodules, erythema or joint affection, the diagnosis is certain. The duration of acute rheumatism in children is shorter than in adults; two or three weeks usually suffices for the primary attack, and often it is much shorter.

Since the introduction of salicylic acid in the treatment of acute rheumatism the profession have held a most powerful sheet anchor to throw to windward in times of need; now and then there are failures of course, but in the main salicylic acid, and its derivatives, may almost be called a specific in this disease, and it is no less efficacious in children than in adults. It mitigates the fever, alleviates the pain, and, withal, renders the child less liable to heart complications. The most efficacious preparation is the salicylate of soda, and regulated in the proper dosage does no more harm than any of the other preparations of salicylic acid, in fact it is more soluble, more palatable and quicker absorbed by the system. There are some drawbacks to be sure; it may cause vertigo, deafness, ringing in the ears, and prostration, also it may cause epistaxis, but such effects of the drug are less liable to occur in children than in adults.

Salicin is preferred by some, but it takes a larger dose to perform the same work and obtain the same results than the salicylate of soda.

The general experience with salol is, that it is a much inferior preparation to any of the others just mentioned; it is oftentimes beneficial, however, in mild cases.

It is a good plan to combine an alkali, like the bicarbonate of soda with the salicylate of soda. The salts of potash are too depressing to be as safe as those of soda, and depressing drugs are to be avoided in rheumatism.

Absolute rest in bed is a prime requisite in the treatment of acute rheumatism in children, and this should be combined with warmth. When the limbs are swollen and painful, I generally di-

rect a strong, hot bicarbonate of soda solution to be prepared, into which flannels are dipped, and wrung, and quickly applied to the affected limb or joint. This tends to sooth the pain, and often times the little sufferer obtains a few hours of refreshing sleep after a night of pain and restlessness.

If heart symptoms arise, the salicylates should be stopped and the alkali increased, say from ten to fifteen grains of bicarbonate of soda every four hours, to a child of five years. Warm poultices may be applied to the præcordia in endocarditis, but blistering should be avoided. On the other hand, in pericarditis local depletion by two or three leeches is advisable, and blisters are warrantable after the effusion has supervened; care should be taken to stop the bleeding occasioned by the leeches.

When the heart's action becomes turbulent and rapid, the tincture of digitalis may be employed in three to five drop doses every four hours according to age, but it should be cautiously administered in pericarditis as it is a dangerous remedy in cases of extreme effusion. Strophanthus may be employed in its place if preferred.

Stimulents are necessary when heart failure is imminent and should be pushed to a point of materially relieving the exhausted vital powers. Alcohol and nitro-glycerine may be usefully employed for this purpose.

At times some form of opium is indicated for the treatment of the pain and restlessness of acute rheumatism in children, but only such doses should be used as will produce quiet, and under no consideration should it be pushed to a point of narcotism.

Dr. Goodwin, in the *New York Medical Journal*, 1888, called the attention of the profession to his use of the fluid extract of cascara sagrada in ten-drop doses three times a day as a laxative, also claiming a beneficial action on rheumatism in his own person and others.

Statistics do not seem to favor antipyrin in place of the salicylates, in the treatment of rheumatism. While it may relieve the pain and reduce the fever, yet it is not permanent in its action and, moreover, is a depressing agent on the heart.

Acetanilide bears a better reputation in the treatment of febrile movements in children than does antipyrin, and I think rheumatism is no exception to this rule.

Phenacetine is credited by many as being a safer and better drug to use than either of the previous antipyretics, and especially it has more permanent results.

Dr. Grinevitski, of Russia, recommends the hypodermic injection of osmic acid in a one per cent. solution in muscular rheumatism. Eight to twenty minims are thrown directly into the muscle substance. There is a burning sensation

for a time which disappears and, he claims, the rheumatic pains are soon relieved, and from two to three injections effect a cure. I have never employed this agent but once, and that in an adult, the result was a certain amount of relief, but a number of injections did not effect a cure. As far as I can find the experience of others is similar.

When anæmia exists, arsenic and iron should be administered during convalescence.

Other symptoms rapidly disappear under the general treatment of rheumatism. The erythema needs no treatment, and the tonsillitis yields readily to the salicylates.

Acute rheumatism does not call for the restricted diet usually prescribed. During the pyrexia it is well to keep the patient on a milk and broth diet. In cases of extreme anæmia, meat juice, or even raw meat pulp, may be given with advantage as blood restorers. The self-digesting foods and peptonized milk are also most useful.

MEDICAL PROGRESS.

TREATMENT OF PURULENT PLEURISY OF INJECTIONS.—M. FERNET reports to the *Soc. Méd. des Hôpitaux* (*Jour. de Méd.*, May, 1890), his success in the treatment of a case of pleurisy involving principally the diaphragm. A puncture was made and 200 grams of pus removed, after which 15 grams of Van Sweeten's liquid was injected. This operation was repeated each three or four days and at the end of ten days the symptoms had improved, and the fever disappeared. At the eighth *séance*, more than 200 grams of pus was removed, and the failure of the injections having been demonstrated recourse was had to naphthol, that it was thought, owing to its unsolubility, might remain longer in the cavity. The solution of M. Bouchard, consisting of naphthol β 5 grams, alcohol 33 grams and water 62 grams was used. Fifteen to twenty grams of this solution was thrown into the cavity with each injection. After five treatments the pus disappeared and the patient was convalescent. From the results of this case the writer thinks that the method of injection is applicable to certain pleurisy, whether infectious or not, as by this means the pus is evacuated and the center of the disease is reached. That it is especially applicable to circumscribed inflammations and those not readily reached by thorocotomy as mediastinal, interlobular and diaphragmatic pleurisy.

ANOMALIES OF THE SEXUAL FUNCTION.—M. MAGNAN presented to the Société de Médecine Légale (*Progrès Médical*, May, 1890), the history of two cases showing the variety of sexual per-

version known as "exhibitionists," or those having a tendency to expose the genital organs in public or to individuals, usually females, whom they meet in unfrequented places.

One of the two cases shows marked hereditary defect, and they both present typical degeneracy.

Magnan classes these cases with the kleptomaniacs, pyromaniacs, and the suicidal and homicidal insane. The relation of imperative conceptions to the abnormal impulses of these degenerate beings is pointed out.

SUSPENSION IN LOCOMOTOR ATAXIA.—ROSENBAUM presented the results of some 2,500 suspensions in eighty-five cases, to the Berlin Society for Internal Medicine (*Internat. Klin. Runds.*, May, 1890). The suspensions were made with Sayre's apparatus. The author recommends that the arm pieces be shortened at first, but as the patient is accustomed to the treatment more weight should be brought directly upon the head. The suspension should rarely exceed three minutes, and not oftener than three times each week. Patients with normal weight bore the treatment best and it is easier to accustom them to it.

Twenty-five of the cases were distinctly improved, in five no change was noted, while in nine the results were doubtful because of the brief time which they were under observation. In the patients benefited was noted an improvement in sleep, appetite increased and heavier weight. The most constant improvement was in Romberg's symptom and in the ataxia. After ten or twenty treatments some patients could lay aside their canes and take long walks. In fifteen the bladder troubles improved, though relapses occurred soon in most cases. The rectal reflexes were only occasionally improved, and in but four cases were the sexual troubles benefited. The gastric crises and vomiting were improved in many cases. That the method is not free from danger is attested by occasional deaths; and it should not be resorted to in cases presenting lung troubles, heart disease or atheroma.

In the discussion P. Gutmann stated that he had employed suspension in twenty-five cases, ten of whom were ataxic, of these five were improved. A case of myelitis was benefited, and four cases of sciatica were relieved to some extent of pain, but no permanent good was obtained.

Prof. Leyden said that he did not regard suspension as of practical or theoretical importance. Like the nerve stretching that had preceded, nothing was to be expected from such a mechanical process upon the complicated conditions in ataxia. The method was not free from danger; accidents had happened but these could be diminished by care, though this very care operated against a successful suspension, and lessened the stretching. The method might be useful in overcoming some of the symptoms, such as pain and

impotence, though the effect upon the mind was not to be disregarded.

Dr. Remak said that in a disease as changeable as tabes many methods would be used and good results obtained. If the changes are not too deep, any treatment will improve them, but occasional cases will grow worse with any or all treatment. The improvement in particular symptoms is not of much importance, as the mental condition plays such a considerable part in these changes.

Prof. Mendel said that all observers were agreed that the knee phenomenon and pupil reflexes were not altered by suspension, but that certain symptoms were permanently improved, which was not the case with other methods; baths, electricity, etc. The industry with which patients pursue for months this treatment speaks for its benefit.

THE MALARIAL INFECTION.—DR. F. PLEHN (*Arch. f. Hyg.*, x, i, p. 78, 1890), describes the results of the examination of the blood of three patients affected with malarial fever contracted in Germany. In one case (quotidian) he was able to demonstrate all the different stages in the development of the plasmodium malaria, with the exception of the so-called sickle and spindle forms. The blood was observed in a warm cell, and the plasmodium was seen in active movement, when treated with quinine they immediately vanished. In a case of tertian ague the characteristic plasmodium was seen but in greatly diminished numbers. In a case of quartan ague they could not be demonstrated.

In demonstrating the plasmodium the following method was pursued: The blood was received upon a cover glass and spread out, as thin as possible, and then fixed by allowing it to remain 10 minutes in absolute alcohol. The stain is made by diluting a concentrated watery solution of methyl-blue, one-half with water, and adding one-half its volume of a $\frac{1}{2}$ per cent eosin solution (in 60 per cent alcohol). Before using the solution it should be filtered. The time occupied in staining is from a few minutes to twenty-four hours. The red blood corpuscles and the protoplasm of the white appear rose colored, while the nuclei of the white corpuscles are stained a dark blue, and the malarial parasite a light blue.

THE ETIOLOGY OF INTERMITTENT FEVER.—DR. RICH POLTAUF (*Wien Klin. Wchnschr.*, iii, 2, 3, 1890), gives a long account of the literature regarding the malarial germ of Laveran. He states the results of his own observations which agree with those of Celli and Güarueri. He holds that the etiological relation of the plasmodium cannot be denied, and that it offers an explanation of the dark pigment found in intermittent fevers; the germs converting the hæmoglobin of the blood into melanin.

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SATURDAY, JULY 12, 1890.

THE CLINICAL SIGNIFICANCE OF THE DIAZO-
REACTION (EHRlich's TYPHOID FEVER
TEST).

When this test was first published it attracted universal attention and soon the journals were filled with reports. After a time it was found that it was by no means diagnostic of typhoid fever, and for a time, the popularity of the test waned. Later it has been shown that it has considerable value in a clinical way, not only in diagnosis but in prognosis. DR. L. RÜTIMEYER (*Correspondenz-Blatt für Schweizer Aerzte*, May 15, 1890) gives a careful study of the literature up to date, and adds the result of his own observations, upon 260 patients; the total number of tests amounting to 2,750. He used the solution recommended by EHRlich: a concentrated watery solution of sulfonilic acid, and a $\frac{1}{2}$ of 1 per cent. solution of sodium nitrite. From these two solutions the reagent is each time freshly prepared, by adding to 200 cc. of the sulfonilic acid solution 10 cc. of pure hydrochloric acid and 6 cc. of the sodium nitrite solution. It is better to prepare the solutions freshly as they keep but a few days in summer, while in cold weather they will remain active for some months.

The statements of PETRI, that the reaction is occasionally obtained in normal urine, and of PENZOLDT that it takes place in diabetic urine, is met by the statement of Ehrlich that these observers used solutions of too great strength. SPIETHOFF has experimentally confirmed this view and has obtained with glucose a pseudo-reaction, but this does not give the green precipi-

tate, characteristic of the true reaction. These results substantially agree with those of Rüttimeyer, who failed to get the reaction in normal urine and in a number of diseases; such as hysteria (5 cases), myelitis (2), hepatitis (2), diabetes (1), cystitis (7), pyelo-nephritis (1), ovarian cyst (3), and the most important from a diagnostic standpoint, 9 cases of abdominal catarrh. These observations confirm Ehrlich's view that the test draws a sharp line between acute gastro-abdominal catarrh and typhus, even when the former is accompanied by fever.

In nine cases of malignant peritonitis the reaction was obtained in eight; only one examination was made in the case in which it failed.

In ten cases of pneumonia a reaction was obtained in five. The author was not able to confirm the views of Ehrlich that the reaction was rarely obtained in pneumonia, and when it appeared it usually meant the presence of complications. FISCHER found a reaction in 7 cases out of 48, and in each one complications appeared at the same time. The appearance of the reaction was regarded as a *signum mali ominis*, which is confirmed by BRECHT, who found that 50 per cent. of cases with reaction died.

The reaction was found in 240 observations made upon 14 fatal cases of phthisis, in 186 instances, or 77 per cent. All of the fourteen cases presented the reaction. Nine phthisical patients were discharged improved, and of the 100 examinations made in these cases only 21 per cent. gave the reaction. Fifteen patients were discharged much improved and are now able to be at work; of the 202 tests made upon these only 18, or 9 per cent., were found to have the reaction. Upon these figures he bases his conclusion that in phthisis (1) a constant failure in the reaction means a light form of the disease, (2) its occasional presence is of no clinical significance, while (3) a constant reaction of a marked kind means an unfavorable prognosis, and an early fatal ending.

The observations upon 87 cases of typhoid lead to the following conclusions. (1) The diazo-reaction is of great importance in differentiating typhoid fever, roseola, splenic tumor, (malarial fevers?) and acute abdominal catarrh accompanied by fever. (2) In cases of suspected typhoid if the reaction is present we probably have to do with that condition; if it is absent during the first and second week we have a very mild case

or some other disease. (3) The amount of reaction does not depend on the febrile process. (4) Disappearance of the reaction in the second and third week ordinarily means an early convalescence or a light course of the disease. (5) Strong and persistent reaction is of no value in determining the probable ending. (6) A recurrence of the disease again shows the reaction even when it has disappeared.

Accompanying this article is an interesting table giving the observations as made from day to day and week to week. A glance at this table shows the relative frequency of the reaction in the different degrees and stages of typhus.

THE ALCOHOLIC QUESTION AND THE INEBRIATE.

It is a curious fact that while the American physician has contributed very little towards the solution of the question of alcohol as a food and medicine, his studies of the inebriate and different methods of treatment are far in advance, and largely quoted by all European authorities. Until recently the literature of this subject has received but little attention in the American Medical Association. Possibly because the intense agitation in lay circles may have covered up the medical interest and strengthened the impression that the subject was entirely a moral one. In the British Medical Association for over a dozen years, numerous papers have been read on the different phases of the alcoholic question, and committees appointed to consider them. One, a Committee on Legislation for Habitual Drunkards, has been continued for years, and has made some excellent reports. Another committee has been very prominent, called a Committee on the Control and Cure of Habitual Drunkards. In France the question of alcohol has brought out several very important studies which have been read before the Academy of Medicine and other societies, and finally have been embodied in several volumes, which practically comprise the best literature on the subject to-day. In the German medical societies the same subject has been discussed very freely during the last five years, and two large volumes have appeared, with many brochures, as the outcome of these discussions. In both England and France medical temperance societies have been formed, the central object of which seems to be to educate the laity concern-

ing the use of alcohol. In 1870 a small society was formed in this country for the study and cure of inebriety. In 1884 a similar society was formed in England; in 1878 two other societies were organized in Germany and Austria. The object of these societies is a thorough scientific study of alcohol and the inebriate. While their special work has not attracted much attention, the rapidly increasing number of papers relating to this subject directly or indirectly, which appear in the programmes of medical society meetings, especially in Europe, show that this subject is going to occupy a large field in the medical science of the future.

Irrespective of all theories and personal opinions, is a practical view of this subject becoming more prominent every year. It is clearly evident that the profession must decide the disputed questions that are growing out of the increasing agitation of the use and abuse of alcohol all over the country. In Europe, where the subject receives but little attention among the common people, the medical interest in it increases very rapidly. It is the reverse in this country, the agitation and interest of the masses has not extended to the medical profession to any great extent. Yet it must come; every year the application of theories and moral and legal remedies demand from the medical profession recognition or endorsement.

Beyond the question of the use of alcohol as a medicinal agent, opens a vast field of social science, where the problems concerning the manufacture and sale of alcohol, and the control and treatment of the victims demand of the profession its best skill and judgment. Within a few years a new class of questions have been submitted to the profession, bearing on the responsibility and mental condition of persons who use alcohol to excess and commit crime, and whose conduct and acts raise doubts as to their mental soundness. Thus the question of alcohol and the inebriate has come to be a distinct medical topic, which cannot be put aside or ignored.

At the Nashville meeting DR. N. S. DAVIS, in his Address on Medicine, gave a very clear outline view of some recent conclusions of the value of alcohol as a food and medicine. The tone and spirit of his review of these late deductions, will serve as an admirable model for other studies in this field.

At the same meeting, in the Section on Neurology and Medical Jurisprudence, eight papers, including the President's Address, were read, devoted to questions of jurisprudence relating to the inebriate. In 1888 two papers were read on this subject before the same Section at the Cincinnati meeting. The next year, at Newport, three papers were presented, indicating how rapidly this subject is coming into prominence.

Dr. Davis' review of alcohol, and the papers read before the Section of Jurisprudence, show that the Association has recognized the demand of public opinion for more accurate scientific knowledge of alcohol and its effects.

To the American physician this subject has a peculiar special interest, for the reason that it occupies so large a share of current popular opinion, and is growing to be one of the great topics of the day. The more this subject is agitated, the more urgent the appeal to medical men for counsel and advice. There is no more important realm for the physician to-day, than the study of alcohol and the inebriate; a study that shall be above all theories and prejudices, and shall aim to find the exact facts and their rational conclusions. While it is a source of pleasure to record the fact, that American physicians have made greater progress in the study of the inebriate and his treatment, still the whole subject has been scarcely touched. The question of alcohol and its action in health and disease is almost an "undiscovered country," and notwithstanding all that is written it is evident that the current opinions and theories of to-day will undergo great changes in the near future.

To medical men who are connected with large laboratories a grand field for original work is open in experiments on the action of alcohol, not only to confirm results which have been previously reached but to discover new facts and conditions relating to its action. The general practitioner has also a grand field for original observation, in both city and country, in the study of the conditions which favor the development and growth of the inebriate and the natural history and progress of the drink impulse, also the possibility of cure and prevention.

The growing magnitude of this subject, and the intense personal interests which come out of it in every community, is an additional important reason why the physician should make this a special study, and thus teach public opinion instead of being taught by it.

NITROGLYCERINE IN GAS ASPHYXIA.

DR. C. W. GOSS, of Lancaster, Ohio, writes to the *New York Medical Journal* an interesting account of a case of gas asphyxiation treated by means of nitroglycerine, hypodermatically applied. A plumber, forty years old, was employed to tap a gas main in an unventilated cellar, when the pipe was suddenly broken off. Before the defect could be repaired, or the workman could get out of the cellar, he was completely overcome by the escaping gas. When the physician reached the patient, he was found cyanotic, with very shallow and spasmodic respiration; he was pulseless at wrist, the extremities were cold, and a state of profound unconsciousness existed. Hypodermics of nitroglycerine, in one one-hundredth grain doses, were given every ten minutes. Within half a minute after the first injection, the radial pulse began to declare itself, and thence grew steadily stronger, while at the end of fifty minutes consciousness was regained, and the patient said he felt quite well, with the exception of a numbness in the extremities. From this time on he grew better, and left for his home at the end of three hours. Artificial respiration was not employed in this case, but it was observed that as the volume of the pulse returned, the embarrassment of breathing was diminished; so that if this case can be taken as a guide, the prime indication will be held to be to establish the equilibrium of the heart and to let the respiration take care of itself. In the same journal, may be found the abstract of a case of overdosage with nitroglycerine, where a person, by mistake, took two drachms of a 1 per cent. solution of the drug: this was followed by recovery, under medical treatment, but for a time the condition of the patient was suggestive of a fatal termination. The symptoms of this poisonous dose were a loss of consciousness, not complete, cold extremities, pallor, dyspnoea, and nausea. Some slight exhilaration was experienced at first but the pulse remained strong and regular, beating 80 to the minute. The distress in the gastric region was relieved by the emetic effect produced by a dose of mustard administered in hot coffee. When the patient returned to full consciousness, she informed her physician that she had been only partially cognizant of what had taken place, but was able to remember the facts of the dyspnoea and of the stomach malaise.

There are now on record three or four other cases of poisoning by illuminatory or coal gas in which nitroglycerine has been used, as one of the parts of the treatment, and recovery has been the result or sequel in every case. In these cases, the hypodermatic use of the drug has been most promptly followed by a manifest improvement in the condition of the patients; the dose has not been repeated in every case at so short intervals, ten minutes, as in this case of Dr. Goss. It may hereafter be determined that a good recovery may be obtained at intervals of half-hour to hour, according to the pulse reaction. It may also be determined that, as is suggested by Dr. Goss, the only treatment that is needed is that by nitroglycerine, and that the battery, or the injection of stimulants, or the practice of artificial respiration may not be called for. It has been assumed that the carbon monoxide, or whatever other ingredient it may be in the olefiant gas that acts as the poison, did its harm as a suffocant, rather than as a heart-depressant, whereas the reverse is likely to be discovered to be the fact, if the observations recently made as to the effects of nitroglycerine shall be confirmed.

EDITORIAL NOTES.

THE HYGIENE OF INFANCY.—The Paris Academy of Medicine has voted to offer a prize of 1,000 francs for the best essay on the hygiene of infancy. It is open to all comers and will be awarded in March, 1891.

GOLD AND SILVER TESTIMONIALS TO SURGEON PARKE.—No medical hero has, in recent times, been better received in London than has Surgeon Parke of the Stanley expedition, and yet withal he is as modest as a young boy. At one of the London banquets, his reception was so overpowering to him that he could not find his voice, so that the master of the feast, in mercy, called upon one of his table companions to tide over the trying moment by the singing of a song. The council of the British Medical Association has voted to confer upon Mr. Parke the gold medal of that Association, the highest unofficial recognition of heroism and fidelity that is known to the English profession. The proprietors of the *Lancet*, not to be outdone, have had prepared a grand silver salver, weighing two hundred ounces, to commemorate for several generations, at least,

the high esteem of the medical "Thunderer" for this young surgeon. Meanwhile the Government is being inquired of on every hand why something official has not been done worthy of the hour and hero.

NEW AND NOVEL WINTER RESORT IN NORTH AFRICA.—Biskra, in Algeria, is the latest novelty in the way of a health resort in winter. It is on the edge of the great desert Sahara, and only a short time ago was an unpromising barren waste. But it has been "reclaimed" by means of artesian wells, has become a veritable garden spot growing date-palm trees by the hundred thousand, and can be approached by a railway, a little less than 200 miles in length, running directly there from Phillipeville, on the Mediterranean coast. It has thermal waters, brought up some 2,500 feet by the artesian tubes, and may prove a very acceptable place of resort to those who desire a warm, dry climate after the season is over at Vichy, Baden, Aix-les-Bains and the like. A very extensive establishment has grown up here in connection with the hotel and bathing-houses and casino; an avenue of palm trees will connect the hotel with Beni-Mora, a small oasis, a few miles distant, whose borders are constantly being extended by the revivifying influences of the subterranean waters that have been brought up by the artesian method. This is probably the first attempt, in modern times, to construct a health resort in the Saharan desert. We shall probably hear more of it.

DEATH FROM TIGHT LACING.—A death from tight lacing is briefly reported in the *Lancet*, for June 14, in the person of an actress of one of the Berlin theatres. This young woman retired to bed as usual one night, after taking part in the performance, apparently in good health, but she was found dead in her bed in the morning. She practiced tight lacing to an extreme degree, and her premature demise was undoubtedly referable to a cardiac syncope brought on by that injurious habit.

DR. M. D. EWELL, of Chicago, has recently been appointed Lecturer on Medical Jurisprudence at the University of Michigan.

THE honorary degree of LL.D. has been conferred by Lafayette College on Dr. Ezra M. Hunt, of Trenton, N. J., and by Yale University on Dr. Francis Delafield, of New York.

HOW DIPHTHERIA IS SPREAD BY CORPSES.—In March, 1890, two corpses, woman and child of same family, dead of throat disease, certified by attending physician to be not "dangerous to the public health," were conveyed from Montmorency county to Lapeer county, Michigan, where, just one week from the day the coffins were opened and the remains viewed, a person who was thus exposed came down with diphtheria. Many others would probably have been exposed except for the action of the local health officer, Dr. C. A. Wisner, who, suspecting that the cause of the deaths was diphtheria, warned the neighbors and forbade the opening of the coffins at the funeral. He promptly isolated the first case that occurred, and no epidemic resulted. This is quite different from the result of a similar occurrence at Zanesville, Ohio, last spring, where many deaths resulted from exposure to a corpse brought from Chicago. It shows the importance of notice to the local health officer of the arrival of every corpse, so that he may take every precaution which may be necessary.

THE CENTRAL NEW YORK MEDICAL ASSOCIATION ON CORONERS.—At a meeting of this society, held a short time ago in Rochester, the following resolutions were adopted:

WHEREAS, It is part of the duties of a coroner to view all dangerously wounded persons and bodies found dead, to determine when, where, how, and in what manner such persons were wounded or came to their death, and to cause inquests to be held if in his opinion a crime has been attempted; and

WHEREAS, Such duties presuppose not only a knowledge of law and of legal processes, but also such a knowledge of anatomy, physiology, pathology, toxicology, and other allied sciences, as to qualify the coroner to determine between natural and criminal conditions; and

WHEREAS, The office of coroner may be, and often is, held by men without legal or scientific qualifications; therefore,

Resolved, That in the judgment of the Central New York Medical Society the laws relating to the office of coroner ought to be so changed as to render only competent men eligible to office, to the end that society may be better protected from attempted crime; and

Resolved, That the State Board of Charities, the Medical Society of the State of New York, and other societies interested in promoting the common weal, be requested to coöperate in the effort to accomplish the enactment of new laws relating to coroners, as set forth in the foregoing resolutions.

The following officers were elected to serve for the ensuing year: President, Dr. Nathan Jacob-

son, of Syracuse; First Vice-President, Dr. A. A. Hubbell, of Buffalo; Second Vice-President, Dr. R. M. Cooley, of Oswego; delegates to State Convention, Drs. B. I. Preston, of Rochester, and C. H. Richmond, of Livonia.

A STRANGE ACCIDENT.—Death sometimes seizes his victims in most queer and unexpected ways, but a stranger accident than one that happened not long ago in New York has seldom been recorded. A lady who had been suffering for several years from pulmonary trouble had been advised to try inhalations of hot air, and had purchased an apparatus for that purpose. In this apparatus is a thermometer, by means of which the patient is enabled to tell when the temperature is at the required height for the inhalations. One day the lady noticed a peculiar dryness of the throat coming on during the inhalation, but did not think much about it until it began to grow very uncomfortable. Then she inspected the apparatus, and found that there was a white powder in the inhaling tube. Removing this, she resumed the inhalations, but was soon obliged to desist on account of a sudden illness. This increased, and in spite of treatment the lady died the following day. Examination of the apparatus showed that the thermometer had broken, and the mercury falling out had been volatilized by the great heat and had caused fatal mercurial poisoning.—*Medical Record.*

AN UNJUST DISCRIMINATION.—The medical examining board of Washington consists of nine members, appointed by the Governor, three only of whom are regular physicians. At the recent annual meeting of the State Medical Association, held at Spokane Falls, a committee was appointed to draft a communication addressed to Governor Ferry. In this protest it is stated that over 700 of the 800 practicing physicians in the State are regular, yet the profession is in a minority on the board, and that they pray that a redistribution may be made whereby they may have a pro rata representation in that body.—*Weekly Medical Review.*

THE OLEATES IN BRITISH PHARMACOPŒIA.—Dr. Shoemaker's oleate of zinc and the corresponding oleates of mercury prepared by double decomposition have been recommended by the Royal College of Physicians of London for admission into the British Pharmacopœia.

TOPICS OF THE WEEK.

CHOLERA IN EUROPE.

Whilst watching to see whether cholera was this year to advance from Mesopotamia and Persia by means of the lines of human intercourse between those countries and Southeastern Russia news has come to the effect that Western Europe is again the seat of this disease, an outbreak having occurred in one of the Mediterranean provinces of Spain, namely, Valencia. The first place affected was the village of Puebla de Rugat, with a population of some seven hundred inhabitants, where the disease is believed to have commenced on May 13 last. At first came the usual denials as to the true character of the malady; then it was admitted that it was choleraic in character; and lastly came an official announcement by the Minister of the Interior to the Senate to the effect that cholera did certainly prevail in Valencia, but that it was not Asiatic cholera. This last statement involves an extremely interesting consideration. The commencement of the disease in Puebla de Rugat is said to have corresponded with the excavation of a considerable amount of drain-sodden earth in the village; and, remembering the history of the province of Valencia during the European epidemic of 1884-86, it is quite possible that we may here be seeing a recrudescence of the disease, owing to the circumstance that the contagium of cholera, which had been lying dormant in the earth, has by reason of the excavations and consequent exposure to sun, rain and other new conditions become again active; and in this very limited sense the present outbreak may fairly be regarded as a local cholera, rather than a cholera newly imported from Asia or elsewhere. But the history of the disease in Spain is essentially that of true cholera, as that term is generally understood. By June 15 it had steadily spread, until out of 100 cases there had been twenty deaths. In the meantime, also, it had extended to other places near at hand, and notably to Montichalvo, where the well-known virulence of real cholera showed itself by causing seven deaths out of a total of fourteen attacks. People now fled from the affected localities, and in this way further diffusion of the disease occurred, one death taking place at Albaida, and one attack being reported from Valencia itself. The latest intelligence refers to sanitary cordons around the infected villages, from which two-thirds of the population had already escaped; to certain operations intended to secure the burning of the polluted soil excavated at Puebla de Rugat; to quarantine restrictions against arrivals from Valencia and other Spanish ports, and to measures of sanitary reform after the mischief has been induced. Some diminution in the epidemic is also reported. Recalling the circumstances of the last epidemic in Spain, it should be remembered that some three hundred cases of cholera occurred in that country in 1884, the main outbreak being in the province of Alicante, but Valencia also suffering. This occurrence was followed in 1885 by a widespread epidemic which, according to the official returns of the Director-General at Madrid, caused 338,685 attacks and 19,620 deaths, the deaths in

the province of Valencia amounting to 21,612. And lastly, cholera still prevailed in certain parts of Spain during the early months of 1886. There is thus an interval of four years between the former and the present outbreak, and it is not difficult to conceive that the link between the two may have remained on Spanish territory.—*Lancet*.

CHOLERA IN THE EUPHRATES VALLEY.

When some months ago the Turkish authorities asserted the extinction or non-existence of cholera in Syria, while Russian consular agents maintained that it was still hovering on the borders of the Persian and Ottoman empires, we expressed our conviction that the subsidence of the epidemic was merely what might be expected at that season, and that it would reappear with the return of spring. And so it is; cholera is reported now as having broken out on the Imperial domains of Djedil and in the village of Bellek, near Bagdad, where six persons have died out of thirteen attacked. Bagdad was the headquarters of the epidemic last year, whence it was carried by the river boats far up the Tigris. We believe that the Foreign office received information of its occurrence as far north as Diarbekr and Erzeroum, though in the latter case it was more probably conveyed by road from Tabreez.

But, though it may thus appear to have receded, such a phenomenon would be without precedent. When, in 1847, it seemed to invade India from Turkestan, or, in 1865, it appeared in Armenia after it ravaged Constantinople and Saloniki, it was not retreating but performing a flank movement, and doubling on its own advance, as we have seen in the spread of influenza to India and Australia after it had overrun all Europe.

Cholera requires human intercourse for its conveyance, certain meteorological and local conditions for its development, and the injection of specifically infected water, etc., for its communication. Thus, while it will cross the Atlantic in a fortnight, it marches by slow stages through lands where railways are still unknown, retiring into winter quarters when traffic and travel are suspended, to reopen the campaign with the return of warm weather which is naturally earlier in the south and the plains than in northern or mountainous regions.

In the winter of 1846-7 it had reached precisely the same points as it did last autumn, and in like manner withdrew for a time to the lower valley of the Euphrates and Tigris, recrossing the mountains and plateau of Armenia in the spring, reaching Astrakhan and Taganrog in July, and Moscow and St. Petersburg in September, when, with the approach of winter, it disappeared only to break out with renewed intensity, and, as it had travelled with tenfold greater rapidity along the good military roads between the Caucasus and the capitals than it had previously done through Persia, so when once it touched the margin of the restless life and commercial activity of Europe it was drawn into the vortex, and there was not a country or large town but had been invaded before the summer was over.

If we may venture to prophesy, we would say that it will not proceed further up the Tigris Valley, but travel-

ling by the Euphrates will be next heard of at Aleppo, and perhaps Beyrout, it will enter Egypt *via* Jeddah and Suez and then leave Alexandria for the Levantine and Mediterranean ports. From Tabreez it will take the route *via* Erzeroum and Trebizond to Constantinople, and Odessa, and by Baku, Tiflis, Derbent, and Astrakhan over Russia.—*British Medical Journal*.

BACTERIOLOGY AND EPIZOOTICS.

At the anniversary general meeting of the Royal Agricultural Society some interesting information was furnished in the annual report, which indicates that this powerful and wealthy society is recognizing the importance of extending its work in the direction of scientific investigation of the etiology and prophylaxis of epizootic disease. Investigations, it was stated, had been carried on during the last six months in reference to the conditions under which tuberculosis was communicated from one class of animals to another, and from man to the lower animals, and also in regard to the microorganisms of pleuro-pneumonia, and the effects of inoculation. The action of the various organisms found in swine which had died of swine fever had been tested by experiments in feeding and inoculation, but no organism had yet been isolated which was capable of inducing typical swine fever or pleuro-pneumonia. Those investigations would be continued. The arrangements for the establishment of a department of scientific research at the Royal Veterinary College, under the grant from the Society, were proceeding, and it was expected that the department would shortly be in full work.—*Brit. Med. Journal*.

FASHIONS AND CUSTOMS OF THE DARK CONTINENT.

There is a sad monotony in our European fashions. Even the so-called changes are often fugues on a trivial theme, or thinly-disguised variations and reproductions of forgotten trivialities. Our new communications and lively interest in the gentle inhabitants of Central Africa may suggest some startling novelties. Besides the graceful extravagances of their head-dress—which, however hardly beats those of the seventeenth and eighteenth centuries, reconstructed for the public edification a few years since by Mr. Lewis Wingfield, and which may yet live again—there are many varieties among our new African *protégés* of the way they wear their heads. The ruling families of the Monbuttu tribe flatten their skulls so as to elongate their heads. The The Bari apply pressure just in front of the ears so as to heighten the head in that place. The Belí distinguish themselves by extracting the four front teeth of the lower jaw. Then there is a variety of ways of wearing a tail, which beat the Court train of the modern beauty in simplicity and perhaps in grace. The Madi wear cotton tails, which swing when they dance. Elsewhere a lady limits her costume to a twig arranged as a tail, and manages to seat herself at a court function with this appendage in a graceful and dignified manner without throwing it over her arm, and without the intervention of a chamberlain. In the matter of eating they are catholic and omnivorous, and nothing comes amiss from

a banana—which furnishes food and, when fermented, drink—to a fat pig or a deceased wife's sister, who gives little trouble there to legislators. Owing to their reticence as to their burial customs—for which dark reasons are suggested—it is difficult to pursue this branch of anthropological and osteological research. It will be seen, from the graver gleanings which we publish elsewhere, that there is much to interest the physician and the anthropologist. Dr. Emin Pasha's diary is a mine of dry but instructive reading on this subject (*Emin Pasha in Central Africa*).

PRINCE BISMARCK AS A PATIENT.

Prince Bismarck used to have the reputation of thinking anything but nobly of the medical profession, and his differences of opinion with the late Professor Frerichs as to the pathology and therapeutics of that important political organ, the liver, were expressed in language more familiar perhaps to scientific controversialists than to diplomats. It is probable that the great statesman was a refractory patient, but bitter experience seems to have taught him that throwing physic to the dogs is not the most satisfactory treatment for the growing infirmities of age. He is now, according to a statement which he recently made to a representative of the *Daily Telegraph*, a model patient, paying the most exemplary obedience to the counsels of his medical adviser, Professor Schweninger. The Prince some years ago was in some danger of becoming the largest as well as the greatest man in Germany, but Dr. Schweninger relieved him of the growing load of "too, too solid flesh," by the judicious application of Oertel's method, which has been made known to English readers by Dr. Mitchell Bruce and others. The details of the Prince's present dietetic regimen may be interesting to those interested in the treatment of obesity. He says: "I am only allowed to drink thrice a day—a quarter of an hour after each meal, and each time not more than half a bottle of red sparkling Moselle, of a very light and dry character. Burgundy and beer, both of which I am extremely fond of are strictly forbidden to me; so are all the strong Rhenish and Spanish wines, and even claret. For some years I have been a total abstainer from all these generous liquors, much to the advantage of my health and my 'condition,' in the sporting sense of the word. Formerly I used to weigh over seventeen stone. By observing this regimen I brought myself down to under fourteen, and without any loss of strength—indeed, with gain. My normal weight now is 185 lbs. I am weighed once a day, by my doctor's orders, and any excess of that figure I at once set to work to get rid of, by exercise and special regimen. I ride a good deal, as well as walk. Cigar smoking I have given up altogether; it is debilitating and bad for the nerves. I am restricted to a long pipe, happily with a deep bowl, one after each meal, and I smoke nothing in it but Dutch Knaster tobacco, which is light, mild and soothing. Water makes me fat, so I must not drink it. However, the present arrangements suit me very well." Had Prince Bismarck shown himself as amenable to medical control in his robust prime as he finds himself compelled to be now, he would not perhaps have to submit to so strict a rule of life in his declining years.—*Brit. Med. Journal*.

PRACTICAL NOTES.

CRESALOL.

The salicylate of cresol, or cresalol, is analogous with salol or the salicylate of phenyl. It is crystalline, insoluble in water, sparingly soluble in alcohol, tasteless and having a pleasant odor resembling somewhat that of salol. Its antiseptic properties seem to be about the same as those of salol, but has a therapeutic preference over the latter in that it is relatively harmless, especially in the antiseptic treatment of the alimentary canal.

SUBSTITUTES FOR IODOFORM.

By the action of iodine on members of the phenol series in presence of an alkali a number of homologous compounds can be formed, all of which have much the same therapeutical properties as iodoform. One of these, the iodide of diiodophenol ($C_6H_3I_2OI$), has been proposed by Messinger and Nortmann, under the name of "annidaline," as an efficacious and inodorous substitute for iodoform. It is formed by heating together solutions of iodine in iodide of potassium; and of phenol in caustic potash, in the proportion of eight atoms of iodine to one molecule of phenol and four of potassic hydrate. There results a dark red amorphous precipitate, which, when dried, forms a fine powder without odor, insoluble in water and dilute acids, but soluble in alcohol, benzol, and chloroform. Aristol, another of these bodies, is the biniodide of dithymol, and is formed by acting on a solution of thymol in caustic soda, with iodine dissolved in iodide of potassium. It is a reddish-brown amorphous body without odor, and apparently non-toxic. Aristol is insoluble in water and glycerine, slightly soluble in alcohol, and readily soluble in ether. It adheres well to the skin, and is very convenient for employment in the form of powder. It has been used by Eichhoff in lupus and psoriasis with good effect.

ALBUMINURIA AS A RESULT OF THE MORPHIA HABIT.

At the meeting of the Société Médicale des Hôpitaux on May 9, Dr. Huchard pointed out (*L'Union Méd.*, No 58), that the abuse of morphia sometimes causes albuminuria, which leads to death by uræmia. Levinstein has published seven such cases, and Dr. Huchard contributed three others, all fatal from uræmia. As to the connection between the renal disease and morphinism, Dr. Huchard suggested that it might be through the action of the poison on the medulla, or by long-continued diminution of arterial ten-

sion; for he has found that morphine lowers arterial tension considerably, thus favoring passive congestion in the organs, the kidney among others. According to him, whereas excessive arterial tension will ultimately bring about arteriosclerosis, a persistent lowering of tension can lead to Bright's disease (obviously Dr. Huchard does not here speak of granular kidney, which is associated with high arterial tension). In conclusion, he pointed out that morphiomania, a cerebral condition, required different management from morphinism.—*Lancet*.

THE COLD BATH IN SCARLET FEVER.

The good effect of cold immersion in severe scarlet fever was well illustrated in a case related by M. Dieulafoy at a recent meeting of the Paris Hospitals Medical Society (*Bull. et Mém. Soc. Méd. des Hôpitaux*, No. 15). The patient, a girl sixteen years of age, was, on the sixth day of the fever, attacked by marked nervous symptoms, excitement, insomnia, suppression of urine, pulse from 120 to 150, and very high temperature. On the eighth day her condition was very grave, the eruption had disappeared, the temperature was 40.9° C. (105.6° F.), pulse irregular and intermittent, and the prostration extreme. In spite of the fact that she was menstruating, he advised the cold bath, and after some delay the friends of the patient permitted the measure. She was placed in a bath at 24° C. (75° F.) which caused severe shivering, cyanosis, and coldness of the extremities. But the pulse rate fell from 150 to 100, and the delirium ceased. At the end of fifteen minutes she was removed from the bath, which was repeated three times during the night, at higher temperatures. The treatment was continued up to the eleventh day, when the body temperature became normal. M. Dieulafoy advocated the bath in all malignant forms of fever, and its good effects in scarlet fever were endorsed by MM. Johel-Renoy and Duponchel, who had obtained similar good results. Dr. Huchard advised caffeine injections for the collapse.—*Lancet*.

ANILINE DYES AS ANTISEPTICS.

In an essay entitled "Aniline Dyes as Antiseptics," Professor Stilling, of Strasburg, claims to have discovered antiseptics strong enough to kill bacteria in a concentration not injurious to the human body, and at the same time diffusive enough to spread wherever on a wounded surface suppurative micro-organisms exist. In the case of a man of seventy, the whole of whose left leg between the ankle and the knee was covered with ulcers which would not heal, Professor Stilling sterilized them all in a few days with the best result.—*Medical Record*.

SOCIETY PROCEEDINGS.

Allegheny County Medical Society.

*Special Meeting, February 19, 1890.*W. S. FOSTER, M.D., PRESIDENT, IN
THE CHAIR.*(Concluded from page 56.)*TRAUMATIC SECTION OF BOTH TENDONES
ACHILLIS.

I have also recently treated a case of injury to one ankle joint, and to the leg on the opposite side, by a mowing machine. The man who subsequently became the patient stepped in front of the cutting bar of a mowing machine and struck the horses; the animals responded immediately; the cutting bar of the machine cut off the tendo Achillis, passed directly through the ankle, cutting off both malleoli, both posterior arteries, and the tendon of the posterior tibial muscle. On the other side the section was higher up; it passed through the tendon of Achillis and cut a piece off the tibia. Both the tendones Achillis were sewed with catgut, four stitches; the other stitches were put in place, and the usual antiseptic dressings applied without drainage. The man's wounds healed without any reaction or discharge whatever, and he walks well to-day without support. The union of the tendons was perfect. I think it is well to emphasize the fact that so long as there is circulation in a limb, an effort should be made to save it, and I think also that such an effort will usually be successful. In one particular, only, I would make some difference in the treatment from that laid down by Dr. McCann. I think that as times goes on I see less use for drainage tubes. When I first commenced to employ this treatment, I used a drain wherever I had a chance. There might have been some fluid, and there probably was some fluid blood running during the first 24 hours, but afterward it was coagulated; after the primary dressing of the wound, I never washed it out, and in three or four days removed the tube with the clot in it, and have never seen any reason to change that practice; but I can believe that drainage tubes are more used than is necessary, and that if we succeed with our antiseptics and apply proper pressure, we need not be afraid of any accumulation of fluid in a wound. I have also seen that if, in a soft cavity there has been a serious accumulation because proper pressure has not been applied, such accumulation give rise to no serious inconvenience, and when evacuated the walls of the cavity collapse and unite without further discharge. I would therefore think that, instead of endeavoring to put in all the drainage tubes possible, I would limit them as a matter of convenience. The tube does no harm

if properly used, but I think it is as usually applied unnecessary.

DR. HUSELTON: In the main I agree with Dr. McCann. I want to say that the amount of damage done to the skin in the case of a crush wound is no criterion of the amount of damage done to the interior parts, bones, muscles, nerves and vessels, and in accordance with my experience I think that where a hand, a wrist joint, an arm or an elbow joint, is caught between the bumpers of a car, the couplers or the deadwoods, sufficiently to produce a fracture, even if not compound, the best thing to do is to take that limb off; if you do not you will regret it and have to do it afterward. I have had considerable experience with injured ankle joints in railroad accidents. One of them was produced by the flange of a wheel; the joint was open so that I could put my fingers in. This I dressed antiseptically, cleansing it of all foreign material, washed it out, put it up antiseptically with a splint, without a drainage tube. I do not use drainage tubes very often, and I think I shall use them less often hereafter. This man got well and left my care before he had perfect locomotion in the joint; it had entirely healed, there was considerable motion; he was making a pretty good stagger at walking. In another case in which the right limb was crushed from the knee to the ankle joint, the left ankle was open so you could see into it also. In this case I amputated the right leg. I treated the ankle joint as in the previous case described, and the man to-day has a perfect ankle joint and a good wooden leg, and is walking around as well as any of us. I do not change the dressing so frequently as does Dr. McCann; sometimes do not remove the dressing for a week. I am governed entirely by the condition of the part and by the patient's condition as to temperature and pulse. If there are symptoms indicating the necessity of removing the dressing, I remove it, otherwise I leave it alone.

DR. RIGG: I would like to say a word in reference to the class of wounds spoken of by the gentlemen who have preceded me. In 1882, I treated my first compound fracture of the elbow. It was caused by an accident to a young man at work in a coal mine; he fell in front of a wagon, his foot caught in a frog, throwing the wagon off the track, the wagon running over his arm and elbow joint about the middle third. The superficial veins were lacerated, the arteries intact. The bleeding was controlled with little trouble. Since it was my first case of the kind, I took two physicians with me when I went to see the case a second time. They insisted on amputation. I removed at that time, I think, a half-dozen small pieces of bone; the young man insisted on leaving the arm as it was, believing there was a fairly good arm left. My plan was to treat it antiseptically, strictly so, and I placed it on an

incline, put no tight dressings to it at all, and had my dressings laid in such a way that I could at my own pleasure remove a portion of them to see what was going on beneath. I might say that the shortening as nearly as I could make it out was three and one half inches. I continued on this plan of treatment, and I may say without drainage tubes, until the arm was well and there was fair motion. There was never perfect motion. The humerus was very much thickened by reason of the fragments of bone not being adjusted closely. As to drainage tubes, I have used few. The last two cases of amputation I had, no drainage tubes were employed; they were amputations of the breast, and I believe them to be fairly good cases to test the value of a drainage tube, there being much surface made bare; and in both cases there was primary union throughout, something I have never seen where a drainage tube was used, and I feel that if the antiseptic treatment is followed out strictly, a drainage tube in the majority of cases is of little or no value, and oftentimes a little disadvantage.

DR. McCANN: I want to say a word in regard to two or three of the criticisms. In the first place, I do not think that because a limb, elbow or wrist has been caught between a deadwood or drawhead, it necessarily requires amputation. I can show any one who is curious enough to come to the West Pennsylvania Hospital instances where not only the bones were crushed, but the soft parts also, that were saved.

As to drainage tubes. I do not like to introduce a foreign substance into a wound, would rather get along without it if I could; but for a crush involving the tissue of the joint or the muscles there must necessarily be a large amount of fluid secretions.

Now I do not care whether they are pent up underneath the skin without any access to air, they are likely to generate poisonous and irritating leucomaines, which cause local irritation and constitutional infection. We all know that before the days of antiseptics the tight closure of wounds was far less favorable in its results than the open method. Who can be sure when he closes his wound, that he has rendered it aseptic? And if he has accomplished this, there may be floating in his patient's blood germs capable of infecting the wound.

DR. BUCHANAN: There are two points on which I wish to speak. The first is the possibility of saving a limb that has been fairly and squarely caught between the bumpers, with fracture of the bones. I believe it can often be done, and I will cite a single instance. About six or eight months ago, I was called with my father to see a little girl whose arm had been caught between the bumpers of two freight cars; the arm was crushed, wholly crushed from the wrist to the elbow. The vessels were not injured, but

there were multiple fractures of both bones and considerable pieces of bone had to be taken out. I think it safe to say more than half the muscular tissue was crushed off. The skin was extensively lacerated. The arm was shapeless. I do not think any injury could deserve the name of crush better than this one. It was so evidently a serious injury that her parents and friends and all persons who saw it thought the arm must be amputated. This arm was not amputated; it was thoroughly cleansed and put together, dressed with a straight splint; on no other kind of splint could the arm be kept in the semblance of an arm. It united without any suppuration, as is usual in such cases when antiseptically dressed, and while the child has not a beautiful arm, nor a very straight arm, she has a hand and a wrist and an elbow joint that are almost as useful as before. Now as to drainage tubes: I think it is hardly fair to bring up the surgery of ancient times to prove that drainage-tubes are good things. We will all admit that the essential object of a primary drain is to eliminate fluids which might become the breeding place for micro-organisms. And I am further satisfied that, if we can exclude local infection of the wound we need have no fear of its infection through the general circulation.

DR. GREEN: . As I understand Dr. McCann in regard to drainage tubes, in applying an antiseptic dressing it is true of course that nobody can be positive that he leaves the wound without any danger of sepsis; I care not how carefully a wound may be washed, it is simply impossible to remove all the putrescible matter, a portion of it is bound to remain in the wound. It seems, therefore, the part of wisdom to provide means for its discharge.

Ohio State Medical Society.

Forty-fifth Annual Session, held at Columbus, June 4, 5, and 6, 1890.

J. McCURDY, M.D., PRESIDENT IN THE CHAIR.

DR. G. A. COLLAMORE, Secretary, reported that there had been nine deaths during the year out of a membership of 536.

The following papers were read:

"Errors of Refraction and Muscular Adjustment as causes of Nervous Phenomena," by Dr. C. F. Clark, of Columbus; "Cleanliness in Eye Surgery," by Dr. B. L. Millikin, of Cleveland; "Surgery of the Knee-joint," by Dr. N. P. Dandridge, of Cincinnati; "Treatment of Compound Comminuted Fracture," by Dr. S. L. McCurdy, of Dennison; "The Rôle of the Microbe," by Dr. A. R. Smart, of Toledo; "The Etiology and Treatment of Pneumonia" by Dr. S. P. Deahofe, of Potsdam; and "Vaginal Hysterec-

tomy," by Dr. A. B. Carpenter, of Cleveland. Dr. D. P. Allen, of Cleveland, showed a woman on whom he had done a successful nephrectomy.

A committee appointed to secure the more thorough organization of the State, reported in favor of making the members of all the county societies members of the State Society, as is done in Indiana. The recommendation was taken under consideration for one year and the committee continued.

Dr. N. Senn, of Milwaukee, was elected an honorary member of the Society.

The President's Address by Dr. J. McCurdy, of Youngstown, was on the subject, "The Care and Treatment of the Insane in this Country." He compared the history of the treatment of the insane in the various countries with that in the United States, which was to the great credit of the latter country. He advised the taking of the incurable cases from the county poor-houses, and placing them in specially adapted institutions. He thought the law of New York State should be followed by others, viz., that all officers and attendants should be compelled to pass an examination, and not allowed to enter upon the work unless qualified. They should, when fully entered upon their duties, be placed upon the civil list and not subject to the caprices of politics. The asylums should be built on the cottage plan. One-half acre should be allowed to each inmate, and rural life encouraged. Medical societies should recognize, more than they have done, the study and treatment of the insane.

The Recent Epidemics of Diphtheria, Scarlet Fever, and La Grippe, at the "Sailors' and Soldiers' Orphans Home," at Xenia, was the subject of a paper by Dr. C. M. Galloway, of Xenia.

The More Frequent Use of Chloroform in Obstetrics was the subject of a paper by Dr. J. F. Baldwin, of Columbus. His conclusions were as follows: Chloroform relieves pain. It shortens labor. It prevents shock. It prevents nervous and physical exhaustion. It reduces the liability to rupture of the cervix and perineum. It does not conduce, to any material degree, to post-partum hæmorrhage. It does not affect the foetus. It is absolutely safe when properly administered. He knew of no real contra-indications to its use, and urged that the boon be given to all women who ask it. He uses it chiefly in the second stage, carrying anaesthesia to the obstetrical degree merely; but at the last moment, when the head is distending the vulva and the agony is most extreme, he produces full anaesthesia.

The First Porro Operation Made in Ohio was the subject of a report made by Dr. J. F. Baldwin, of Columbus.

Carcinoma Mammæ was the subject of a paper by Dr. Dudley P. Allen, of Cleveland. The doctor believed that the common rules for diag-

nosis and the prevailing advice as to operation were bad. He insisted very strongly on the early operation. He thought we should not wait for immobility of axillary glands, for infiltration of tissue and depression of nipple. He recommended, as a method of gaining access to the axillary space, the finding of the axillary vein and following it up. On early diagnosis and operation depends the success of the case.

Puerperal Fever was the subject treated by Dr. G. H. Colville, of Harrisville. He favored anti-septic precautions and time in the open air after having seen an infectious case, before going to a woman in confinement.

The High Amputation of the Cervix vs. Total Extirpation of the Cervix was the subject treated by Dr. T. A. Reamy, of Cincinnati. He argued that if we remove the whole uterus for epithelioma of the cervix, why not remove the vagina, bladder and splayed extremities of the Fallopian tube? Three cases in New York, post mortem, showed disease limited to the external os. In two cases operated upon in Ohio the histological examination showed no evidences whatever of the existence of cancerous disease.

Intra-pelvic Surgery for the Relief of Inflammatory Diseases, was the subject of a paper by Dr. R. B. Hall, of Cincinnati. This paper was a report of one year's work, and a supplement to ten consecutive cases of abdominal section for the removal of the uterine appendages. The cases reached eighteen in number, and all but three had pus. All recovered. He wished to say that he could not make this report unmarred by a death, but that he had them where he could give them careful after-treatment. It has been asserted that the after-treatment in these cases amounts to nothing. As a rule, they do not require long treatment, but need very careful attention for a few days at first. These operations are among the most trying in pelvic surgery. No exact estimate can be made, before opening the abdomen, of the gravity and extent of the complications to be met with in any given case. No man has a right to open the abdomen unless he is prepared for any emergency which might occur, and is competent to deal with the conditions found on the spur of the moment. He thought that all cases of prolonged chronic salpingitis should have a prolonged and systematic course of treatment. In many of the cases reported, it was impossible to separate the adhesions without bursting the pus-sac. In every case where this occurred, and in those where there was much bleeding, the abdominal cavity was washed out. Free washing-out of the abdominal cavity need not be feared, the heat relieves the shock. He has constantly employed it, when necessary, for three years, and has not seen a single case where it caused bad symptoms. The irrigation is continued till the water returns

clear. Although all the cases recovered, many of them would not submit to an operation till *in extremis*.

Report of a Case of Cholecystotomy, with exhibition of specimens, was the subject brought before the Society by Dr. Rufus B. Hall, of Cincinnati. The patient was a slender woman, 39 years of age, the mother of seven children, the youngest 6 years of age. Severe pain and vomiting of bile was followed by the jaundice and the observation of an enlargement in the region of the gall-bladder, which disappeared in about two weeks. It was not long till these symptoms returned. An operation was suggested, but refused. She went on and grew worse, falling from 115 to 90 pounds. When *in extremis* and apparently dying the doctor was called in consultation. An operation seemed the only ray of hope, and was suggested and consented to. The enlargement, which was supposed to be the gall-bladder, proved to be the liver. The gall-bladder was enlarged, and an obstruction was found, caused by a stone in the common duct. Patient lost considerable blood, and it was necessary to reopen the wound. Patient survived the second operation. For fully a week her temperature was subnormal, once or more times during the twenty-four hours. The tube was removed on the sixteenth day, and on the twenty-first the sinus closed. The cholæmia rapidly disappeared. She complained of nausea but little after the third day, and vomited but twice after the operation was made. On the third day she retained liquid food, and after the fifth she had a ravenous appetite. The stools showed the presence of bile from the first movement, which was on the fourth day; on the twenty-eighth day she was able to go down stairs, and is now in her usual good health.

FOREIGN CORRESPONDENCE.

LETTER FROM LONDON.

(FROM OUR OWN CORRESPONDENT.)

The Epidemic of Hypnotism—Experiments to determine the Relative Antiseptic Action of Essential Oils—An interesting Contribution to the Chemistry of Gout—Personal and Domestic Hygiene, etc.

The world is passing, according to Dr. Richardson, through one of those mental epidemics which are closely akin to those which are purely physical. He calls it the "epidemic of hypnotism." Napoleon I., it is observed, on his return from Elba, literally hypnotized and governed by soldierly suggestion, not one man, but thousands; not women and weak men, but soldiers who on the field of battle would know no fear. The same kind of power, Dr. Richardson says, has been, and can at times be, exercised in medical practice.

Under it physical pain itself can be abolished for a time and the will of the subject be led into obedience, and even into deferred obedience, under the influence of the commanding will. Will hypnotism eventually supersede ether and chloroform? Dr. Richardson is of opinion that it will never become a serious rival of the physical anæsthetic, local or general, produced by volatile substances. Limited at this moment to the few who are susceptible to it, hypnotism must become still more limited as enlightenment goes on. As a method for producing oblivion from pain, he expects to find it further limited in application to short seasons of special social or meteorological cast, and if it fail, the influence of suggestion will fail with it.

Experiments have recently been made with the design of determining the relative antiseptic action of essential oils. The method adopted was to dip the cultures of bacteria, by means of platinum wires, into the oils for a certain time, and then to again embed them in agar agar. The micro-organisms then developed if the oils employed were without effect. Typhus bacilli were killed by an immersion for twenty-four hours in the oils of cinnamon, cloves, thyme, verbena, absinthe, sandalwood and cedar. The oils of caraway, juniper, matico, galbanum, melina, valerian, lemon, savin, copaiba, pepper, turpentine, rose, camomile and cummin manifested a similar action in between twenty-four and forty-eight hours; the other essential oils first showed it after two to ten days. For comparison it was found that a 1 per cent. sublimate solution destroys the typhus bacillus within ten minutes; iodoform ether requires thirty-six hours. The glanders bacillus is killed by sublimate within fifteen minutes; the oils of cinnamon, cloves, thyme, verbena, geranium and origanum effect the same in from twenty-four to forty-eight hours; other ethereal oils in from two to fifteen days. It is suggested that the non-toxic quality of essential oils renders them suitable in the treatment of infectious diseases, but from the economical point of view this may be doubted.

At the recent meeting of the Royal Medical and Chirurgical Society, Sir William Roberts brought forward a most interesting contribution to the chemistry of gout. In a previous paper read before the society he adduced evidence to show that in the physiological state uric acid existed in the blood and urine exclusively as quadrurates, and that when it appeared otherwise this was due to abnormal changes in the quadrurates. The changes were traced which the quadrurate underwent in urine, and which led up to the separation of free uric acid in gravel. At this meeting Sir William traced the changes which the quadrurate underwent in the blood, and which led up to the deposition of sodium biurate in gout. These latter changes were connected with the

property possessed by the quadrates of taking up in alkaline solutions an additional atom of base, and of thus being converted into biurates. It was this knowledge which permitted a coherent view to be presented of the succession of events which culminated in a paroxysm of gout. In the normal state the uric acid circulating in the blood as quadrurate was at once removed unchanged by the kidneys; but in the gouty state, either from defective kidney action or some other cause, the quadrurate remained in the blood, circulating in a medium which is rich in sodium carbonate, until it was transformed into sodium biurate, which is almost insoluble in blood serum, and is probably for that reason difficult of removal by the kidneys. In this way sodium biurate accumulated more and more in the blood, and when the accumulation had reached a certain point, was deposited in the crystalline form in the joints and elsewhere, thereby determining the occurrence of a fit of gout. Sir William Roberts based this view on a study of the reactions of blood serum and synovia with uric acid and the urates. In concluding he said gout was in essence a mode of nutrition associated with an error, which was uric acid; there was a colloidal form of uric acid, as well as the crystalline form, and the action of the two forms also differed. With regard to treatment, Sir William thought that if an attack was imminent a patient ought not to take mineral waters containing lime and soda, except very sparingly at first, and he thought that most of the good done at mineral springs was due to the water taken, and not to the salts contained in it.

Princess Christian presided at a drawing-room meeting, held at the residence of Dr. and Mrs. Symes Thompson, Cavendish Square, when Dr Schofield, of the National Health Society, developed a scheme which aims at giving all ladies an opportunity of acquiring a practical knowledge of personal and domestic hygiene by means of a fixed course of educational lectures and demonstrations in the autumn at local centres all over London. These lectures, it was urged, would be particularly suitable to girls after leaving school. At that period, owing to the sudden cessation of brain work, nervous diseases were encouraged. As Dr. Symes Thompson explained, the classes would be not surgical only, but would deal with the subject of preventive medicine.

Mr. Jonathan Hutchinson has completed the first of his four volumes of Archives. There is a paper on the leprosy problem, in which the author emphasizes his views upon the cause of the disease being connected with the eating of fish.

It is announced that the foundation stone of the new building for the Royal South London Ophthalmic Hospital will be laid by the Prince of Wales during the month of July.

A case of accidental wounding of the bladder by a decapitating hook, through the bed on which

the patient was lying breaking down, just as the operator had completed the severance of the head, recently illustrated the necessity for the obstetrician to be sure that before he attempts any operation or operations the bed or table on which the patient lies is thoroughly secure. The hook in this case went completely through the anterior vaginal wall into the bladder. The wound was at once sewn up with two sutures and a catheter retained in the bladder. On the tenth day the sutures were removed, union being perfect.

Morphine in the urine is stated to be detected by adding a drop of liq. ferri sesquichloride, by which a blue color is at once produced. In this way the existence of morphinomania may be detected.

A great sensation has been caused through the objection of the General Medical Council to register the diplomas in public health granted by the University of Glasgow.

G. O. M.

DOMESTIC CORRESPONDENCE.

How Diphtheria is spread by Corpses, through Carelessness in one Locality, and promptly restricted by a faithful Health Officer in another Locality.

To the Editor:—April 25, 1890, a copy of the *Atlanta Tribune*, Atlanta, Montmorency County, Mich., April 17, 1890, reached the office of the State Board of Health, in which appeared the following item:

"REPORTED TO BE OVER TWENTY CASES OF DIPHTHERIA IN AND AROUND VIENNA.—Vienna being an unincorporated village in Albert township, Montmorency county, a letter asking report and urging a prompt restriction of the alleged diphtheria was immediately sent to J. T. Dimmick, health officer of Albert township, May 8. The following reply was received:

"*Sir:*—This is to inform you that the item in the *Atlanta Tribune* was false. There has not been a case of diphtheria at or near Vienna. Dr. Warren, of Gaylord, said it belonged to la grippe and was not contagious. Yours truly, J. T. DIMMICK, Health Officer.

"P. S. Sulphur was burned as a disinfectant."

Just why disinfection was attempted if the disease was *not* communicable, remains to be explained. But that there was a fatal throat disease in or near Vienna, that communicated diphtheria in Lapeer county, was subsequently proved.

June 4, there was received from C. A. Wisner, M.D., health officer of Marathon township, Lapeer county, a final report of an outbreak of diphtheria in his jurisdiction, and in reply to the question as to "source of contagium and mode of introduction of the disease," he sent two certificates of death, given by F. C. Buchner, M.D., Atlanta, Montmorency county, which certificates were from the coffins of two corpses brought into Lapeer county. The certificates are as follows:

"Office of F. C. Buchner, Physician and Surgeon, Atlanta, Mich., March 23, 1890.

"To whom it may concern:

"This is to certify that Mrs. Dell Putman, of Vienna, died from suppurative tonsillitis, and that it is a disease not dangerous to the public health.

"FRANK C. BUCHNER, M.D."

"ATLANTA, MICH., MARCH 23, 1890.

"This is to certify that I was called to see the little girl Flossie Putman, and that it died of spasmodic croup, a disease not dangerous to the public health.

"FRANK C. BUCHNER, M.D."

That a man capable of practicing medicine, and especially one writing "M.D." after his name, could bring himself to sign two such certificates, on the same day, relative to two persons in one family, *both dead of throat disease*, certifying that it is "a disease not dangerous to the public health," and thus without precautions permit such dead bodies to go across the State to endanger the lives of innocent persons who rely upon such certificates, is, to say the least deplorable.

Dr. Wisner's report said :

The corpse of Mrs. Dell Putman, also that of her little girl, were brought from Vienna, Montmorency county, on the 24th of March, 1890, to her father's house here. Mary Tibbitts, a stepdaughter, was present, and helped to open the coffins and attend to the care of the dead until the funeral, which occurred on the 26th of March. I knew nothing of the nature of the disease that had caused their death at this time, but on talking with Mr. Putman on Tuesday, the 25th of March, I became convinced that it was diphtheria, but as I did not know positively, and they had a certificate from Dr. Buchner, stating that the disease which caused their death was not contagious, I could not very well prevent them holding a funeral. I notified them of my suspicions about the case, told the neighbors not to let any of their children go there at all, that the coffins should be closed tight, and not opened the next day at the funeral, which was held at their private residence, one mile north of this village. I was censured some for the stand I took, but as subsequent events proved, I think I was right, for on the 31st of March, 1890, just one week from the day she helped open the coffin of Mrs. Dell Putman, she—Mary Tibbitts—was taken sick with diphtheria and was confined to her bed eight days. I inclose to you the certificates which came on each coffin. Please do not destroy them, as they might be wanted to be referred to some time. I promptly quarantined this case, which happily was the only one which occurred. I think by warning the neighbors, and the funeral being held privately, we prevented a greater spread of the disease. C. A. WISNER, M.D.

Columbiaville, Mich.

In this instance, through the care of the health officer, the outbreak of this very dangerous disease was promptly restricted, so that such fearful consequences as occurred from the similar instance at Zanesville, O., in the spring of 1890, were here averted. This is, therefore, one more instance enforcing the importance of requiring, in every case, a permit from the health officer of *the locality into which any dead body* is to be brought, and such notice of the time of the arrival of the corpse as will enable the health officer to take any precautions which he may deem to be necessary.

Any corpse dead from *any* disease is conclusive

proof of the presence of a fatal disease—therefore one which, under certain circumstances, may be dangerous to the public.

Every local board of health in Michigan is authorized by law to make such a regulation as would provide for such notification, and to enforce, against any person or persons, the penalty for its violation. And as the people of any locality are liable, at any time, to be at the mercy, in this regard, of an ignorant, careless or culpable doctor in some distant place, ordinary prudence would seem to dictate that every local board of health should make and enforce a regulation requiring notice to the local health officer of the arrival of every corpse. HENRY B. BAKER, Sec'y.

Office of the Michigan State Board of Health, Lansing, June 7, 1890.

The Revision of the U. S. Pharmacopœia of 1890.

To the Editor :—Please find herein enclosed, a copy of report, by me, as Chairman of the Committee from this State, to Convention for Revision of U. S. P. 1890, held at Washington, D. C., May 7-10, and delivered to New Jersey State Medical Society June 11th.

As I think the report contains matter of importance to the entire medical profession, it is submitted to you ; and I would say that it is my opinion the American Medical Association should take decidedly more interest in the work of the Convention.

Very truly yours,

D. BENJAMIN, M.D.

Camden, N. J., June 12, 1890.

TO THE NEW JERSEY STATE MEDICAL SOCIETY.

Report of the Delegation to the Convention for the Revision of the United States Pharmacopœia of 1890.

The other delegates and alternates from the Society being unable to attend the Convention, I as Chairman, was compelled to be the sole representative of this Association at the Convention held in Washington from the 7th to the 10th of May last. About 200 delegates were present. I found this great State of New Jersey without due influence in this important convention ; assuming that the United States Pharmacopœia belongs to the Convention, it appears to me that this Society should be very careful of its interest ; I found that the Committee of Revision of 1880, had been the only Committee that had made any report of a financial balance in its possession, to the Convention ; that it, the Committee, had given out the publishing and sale of the work to a firm of New York publishers who had sold the book at a high price and an edition of the same amounting to about 17,000 copies, the profits from which were variously estimated

at from \$20,000 to \$54,000, while the scientific gentlemen who did the real work of revision, seemed to have been unpaid, and the vast sum of money (the proceeds of the work), which should have been the property of the Convention, was lost to it. It is estimated that the work could be published at a sum which would enable it to be put upon the market and placed in the hands of druggists and physicians at about half the price they have had to pay, and at the same time leave in the hands of the Convention or Committee of Revision a sufficient sum to pay for all necessary expert work and also the expenses of the Convention, including the actual expenses of each delegate. We can hardly expect men to be so enthusiastic as to go from New Jersey or from California for the purpose of doing scientific work for the benefit of the profession and the public and at the same time pay all their own expenses. Such men are soon financially so crippled as to be very limited in the amount of work which they can do. I believe it would be better for this Society to pay the expenses of its delegates; to nominate them with great care and elect them, in open session for the next convention which meets in 1900. I find further that the medical profession is not sufficiently represented, either in the Convention or in the Committee of Revision. I find further that there is danger of the work being influenced too much by interested parties. Wholesale drug houses, manufacturing chemists, publishing houses and other interested parties, were present and were active in trying to influence the Convention. A motion to make dispensatory publishers pay \$5,000 for the use of the copyright, was defeated, as was a motion to have a committee of business men appointed to attend to the financial affairs of the work. I hope that those of us who are living in 1900, will see to it that this Association is adequately represented in the great work of revising the Pharmacopœia.

Notwithstanding the foregoing criticism, very much excellent work was done by the Convention, most of which has already been published in the journals, and I have no doubt that so far as the scientific work and arrangements of the Pharmacopœia of 1890 are concerned, it will be a great improvement upon that of 1880.

Mr. Charles Rice, of New York, deserves especial mention as having done invaluable work.

The work is now in the hands of the Committee of Revision, which expects to have it ready for publication in about two years; meantime any suggestion from any member of this Association, can be forwarded to Dr. H. C. Wood, president of the Convention, and will be considered by the Committee. Respectfully submitted,

D. BENJAMIN, M.D.

Camden, N. J., June 9, 1890.

NECROLOGY.

Martin de Bartolome, M.D.

Dr. Martin de Bartolomé, of Sheffield, England, an ex-president of the British Medical Association, died suddenly, June 2, by angina pectoris, at the age of 77. Although of Italian parentage, he was "an Englishman in every sense of the word," and for nearly half a century stood in the front rank of his profession, in the esteem and affection of his Sheffield colleagues, to whom his sudden death was a shock most keenly felt. Dr. de Bartolomé had occupied many public posts of honor in local and other institutions, and not the least among them was the chair of the practice of medicine in the Sheffield School of Medicine.

Willis F. Westmoreland, M.D.

Dr. Willis F. Westmoreland, of Atlanta, Ga., died June 27, aged 62 years. He was a native of Georgia, a graduate at Jefferson College, a post-graduate student for three years of surgery, at Paris, chiefly, and became professor of surgery in the Atlanta Medical College, of which he was one of the organizers in 1854. During the late war he served as surgeon with the Confederate forces. He was one of the founders of the *Atlanta Medical and Surgical Journal* in 1855. He was President of the Georgia Medical Association in 1873, and Vice-President of the American Association in 1879.

BOOK REVIEWS.

CLINICAL DIAGNOSIS: THE BACTERIOLOGICAL, CHEMICAL, AND MICROSCOPICAL EVIDENCE OF DISEASE. By DR. RUDOLF V. JAKSCH, Professor of Special Pathology and Therapeutics and Director of the Medical Clinic in the German University of Prague. Translated from the Second German Edition by JAMES CAGNEY, M.A., M.D., Demonstrator of Anatomy, St. Mary's Hospital and Medical School; Physician to out-patients, Hospital for Epilepsy and Paralysis, Regent's Park. With an Appendix by WM. STERLING, M.D., Sc.D., Brackenbury Professor of Physiology and Histology in the Owens College, and Professor in Victoria University, Manchester. With numerous Illustrations, partly in Colors. London: Charles Griffin & Co. Philadelphia: J. B. Lippincott Co. 1890.

This is a new and valuable work. The first German edition was quickly exhausted, and a second one, fresh from the hands of the author, has just been translated into English, and is pre-

sented to the American medical profession admirably illustrated and in the superior style characteristic of the publications of the J. B. Lippincott Co. It is worthy of a first place as a text-book, and dealing as it does in a most critical manner, with the bacteriological, chemical and microscopic evidences of disease, the latest literature upon these subjects is here so presented as to make it a book of great value both to medical practitioners and medical students.

Under as many separate chapters with appropriate subdivisions, the author gives very exhaustive studies of the Blood; the Buccal Secretion; the Nasal Secretion; the Sputum; the Gastric Juice and Vomit; the Fæces; Examination of Urine; Investigation of Exudations, Transudations and Cystic Fluids; the Secretions of the Genital Organs, and lastly an especially valuable chapter on the Methods of Bacteriological Research. A valuable appendix is also added by the translator, Professor Sterling. The illustrations will be found to be exceedingly helpful to those engaged in practical work. It is just such a work as can serve a valuable purpose as a class text-book in our medical colleges, where class recitations are required. It is an octavo of 350 pages, and comes to us from the well known firm of A. C. McClurg & Co., 117-121 Wabash Ave., Chicago. Price \$6.50.

REGIONAL ANATOMY IN ITS RELATION TO MEDICINE AND SURGERY. By GEORGE MCCLELLAN, M.D., Lecturer on Descriptive and Regional Anatomy at the Pennsylvania School of Anatomy; Professor of Anatomy at the Pennsylvania Academy of the Fine Arts; Member of the Association of American Anatomists, Academy of Natural Science, Academy of Surgery, College of Physicians, etc., of Pennsylvania. With about 100 full-page facsimile illustrations reproduced from photographs taken by the author of his own dissections, expressly designed and prepared for this work, and colored by him after nature. To be complete in two volumes of 250 pages each. Large quarto. Philadelphia: J. B. Lippincott Co.

The object of this work is to convey a practical knowledge of regional anatomy of the entire body; the text to embrace, besides a clear description of the part in systematic order, the most recent and reliable information regarding anatomy, in its medical and surgical relations. The illustrations are intended to verify the text and to bring before the reader the parts under consideration in as realistic a manner as possible. Vol. I will be ready for publication about December 1, and the second volume is expected to appear shortly thereafter. The work will be sold by subscription only; and salesmen will begin an active canvass the coming October.

MISCELLANY.

HEALTH IN MICHIGAN.—For the month of June, 1890, compared with the preceding month, the reports indicate that typhoid fever, cholera infantum, cholera morbus, dysentery, diarrhoea and intermittent fever increased, and that tonsillitis, cerebro-spinal meningitis, typho-malarial fever, pneumonia, pleuritis and whooping-cough decreased in prevalence.

Compared with the preceding month the temperature was much higher, the absolute humidity and the relative humidity were more, the day ozone and the night ozone were less.

Compared with the average for the month of June in the four years 1886-1889, membranous croup and measles were more prevalent, and typho malarial fever, cerebro-spinal meningitis, puerperal fever and whooping-cough were less prevalent in June, 1890.

For the month of June, 1890, compared with the average of corresponding months in the four years 1886-1889, the temperature was higher, the absolute humidity was more, the relative humidity was about the same, the day ozone and the night ozone were slightly less.

Including reports by regular observers and others, diphtheria was reported present in Michigan, in the month of June, 1890, at 58 places, scarlet fever at 52 places, typhoid fever at 28 places, and measles at 108 places.

Reports from all sources show diphtheria reported at 4 places less, scarlet fever at 3 places less, typhoid fever at 4 places less, and measles at 5 places less in the month of June, 1890, than in the preceding month.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U.S. Army, from June 28, 1890, to July 4, 1890.

First Lieut. William N. Suter, Asst. Surgeon, is granted leave of absence for two months, to take effect August 6, 1890. By direction of the Secretary of War. Par. 3, S. O. 149, A. G. O., June 26, 1890.

Major James P. Kimball, Surgeon, is granted leave of absence for four months, to take effect when an officer of the Medical Department is assigned by his department commander to relieve him. By direction of the Acting Secretary of War. Par. 6, S. O. 152, A. G. O., Washington, July 1, 1890.

By direction of the Secretary of War, the following named Asst. Surgeons (recently appointed) will report in person for duty to the commanding officers of the posts designated opposite their respective names:

First Lieut. Frank R. Keefer, Ft. Leavenworth, Kan.

First Lieut. Thomas U. Raymond, Ft. Sherman, Idaho.

First Lieut. Henry D. Snyder, Ft. Reno, Ind. Ter.

First Lieut. Allen M. Smith, Ft. Snelling, Minn.

First Lieut. Ashton B. Heyl, Ft. Niobrara, Neb.

First Lieut. Joseph T. Clarke, Ft. Riley, Kan. Par. 6, S. O. 151, A. G. O., Washington, June 28, 1890.

Capt. William H. Corbusier, Asst. Surgeon, is relieved from duty at Ft. Lewis, Col., and will report in person to the commanding officer, Ft. Wayne, Mich., for duty. Par. 7, S. O. 151, A. G. O., Washington, June 28, 1890.

First Lieut. Robt. R. Ball, Asst. Surgeon, is relieved from duty at Ft. Riley, Kan., and will report in person to the commanding officer, Ft. Spokane, Wash., for duty. Par. 7, S. O. 151, A. G. O., Washington, June 28, 1890.

CORRIGENDA.

In the issue of July 5, page 17, top line, second column, for "Dr. Robert," read *Dr. J. M. Rotch*. Page 18, line 36, first column, for "securing sugar" read *occurring sugar*. Page 19, twelfth line from bottom of first column, for "piled on to racks" read *filled into sacks*. Page 20, line 33, first column, for "one three-hundredths," read *one three-thousandths*.

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No. 3.

ORIGINAL ARTICLES.

AMERICAN VERSUS EUROPEAN MEDICAL EDUCATION.

A COMPARISON OF AMERICAN MEDICAL COLLEGE WORK WITH
THAT OF EUROPEAN MEDICAL SCHOOLS.

INCLUDING SOME THOUGHTS UPON FREE TRADE IN MEDICAL
DIPLOMAS OF FOREIGN MANUFACTURE.

Read in the Section of State Medicine at the Forty-first Annual Meeting of the American Medical Association, held at Nashville, Tenn., May, 1890.

BY SAMUEL O. L. POTTER, A.M., M.D., (JEFF).

PROFESSOR OF PRINCIPLES AND PRACTICE OF MEDICINE IN THE
COOPER MEDICAL COLLEGE OF SAN FRANCISCO. AUTHOR OF
"A HANDBOOK OF MATERIA MEDICA," ETC. "QUIZ-
COMPENDS OF ANATOMY AND MATERIA MED-
ICA," "SPEECH AND ITS DEFECTS,"
"AN INDEX OF COMPARA-
TIVE THERAPEU-
TICS," ETC.

Any American physician who is thrown into the society of European medical men, either at home or abroad, cannot fail to become sensible of a feeling of contempt for American medical education and persons, which pervades the European to such an extent that, polite as he may be, he is never able to wholly disguise it. This sentiment is most freely exhibited by medical immigrants to this country, by gentlemen who come here to settle after having received a foreign medical degree or diploma; and many who show it most offensively are Americans by birth though of foreign parentage, who have been sent abroad for their medical education. If hailing from the German or Austro-Hungarian empires, the diplomas¹ possessed by these gentlemen do not qualify them to practice medicine in the countries where they were obtained; for not one in a thousand of such medical immigrants possesses the certificate of the State examination (Staats-Examen) of the country in which he was educated. Although, however, their education is not of a grade sufficiently high to admit them to practice at home, they are admitted by our liberal laws and customs to all the legal rights and professional privileges enjoyed by the most highly educated physicians of our own or any other country. In return, very many of them rarely

fail to sneer at our colleges and their graduates, or to promulgate the idea that foreign medical education is so superior to ours that American graduates are not worthy of being entitled physicians.

This spirit pervades so many foreign medical men that it becomes exceedingly offensive to us at home, and equally humiliating abroad; especially to those who believe, with the writer, that the assumption is unjust to our professional men and schools; and that it is based upon false information and prejudiced statements, which find their way every now and again into the columns of the European medical press.

That we ourselves are to blame, for this contemptuous treatment from many who are inferior to our poorest graduates, is a fact which becomes apparent after devoting but slight attention to the subject. If we would honor ourselves and our Harvards, Bellevues, Jeffersons, etc., by demanding from the lawyers who make our laws the application of the same tests to, and restrictions upon foreign graduates, which their governments apply to our graduates, we would strike at the root of the evil, and enforce respect with a single blow. If our laws were made to provide that no diploma from a German medical school or University would be recognized by the Pennsylvania State Board of Examiners until such times as graduates of Pennsylvania medical schools received similar recognition in the German empire, we would hear the last about fraudulent American diplomas being the distinguishing feature of our system of medical education. The authorities at Berlin and Vienna would then speedily take the trouble to inform themselves in regard to the character of our different colleges; and would soon learn to distinguish between fraudulent American diplomas and true ones, as clearly as they do between fraudulent and genuine American bonds and other securities in their financial transactions.

The recent insolent action of the authorities of the medical school at Berlin, in denying to our graduates studying there the right to the letters "M.D." after their names in the catalogue, though giving it to graduated students from other countries, ought to open the eyes of every American physician, and excite a determined spirit of

¹ Throughout this paper I shall use the word "diploma" in its common significance, the certificate of graduation in either College or University.

retaliation, unless we have lost our manhood entirely, and are satisfied to submit to any insult from any source. The first effect should be to draw our students away from Berlin, where they have been flocking of late years for post-graduate study; which can be obtained by the English-speaking student with much more direct benefit at London or Edinburgh. If a student is not thoroughly versed in the German language he can obtain but little benefit from a post-graduate year in Berlin or Vienna; unless the atmosphere of those cities is so permeated with medical lore that the student inhales its wisdom as he breathes, or absorbs it from the beer he drinks and the tobacco he smokes. England is our natural mother educationally as in every other respect. Our old time physicians went to Edinburgh to finish up, and there has never been any real reason why our students should go beyond that ancient seat of learning any farther than London, to obtain any advantage of medical education.

To return to the question, however, whether our medical schools are as deserving of credit as those of Europe, will necessitate our looking somewhat closely at the latter, before drawing any conclusions upon the subject. The very fact that German degrees in medicine are discredited by their own governments, every graduate being obliged to pass the State Examination before being permitted to practice, shows clearly that the diploma of M.D. of the average German University is of little value at home as evidence of a good medical education. Such has always been the impression in England in regard to German degrees, which from time immemorial have been looked upon there with even more contempt than the Berlin dons show for American ones. And when we understand, that attendance upon lectures is not only not obligatory upon the German medical student, but is not even required by the regulations of many of their best Universities, we are not at a loss for a reason why their degrees are discredited. The rule in German colleges seems to be to let the students do pretty much as they please. Understanding this feature of German medical education, that students are admitted to the final examination in many schools, without any requirement as to previous attendance on lectures, we will require a great deal of faith to believe that their average graduates are as well educated as ours, who must attend 80 per cent. of the daily lectures for three collegiate years. The evidence for this statement does not rest on mere hearsay. I have before me the regulations of the University of Heidelberg,² for graduation in medicine; the first of which reads as follows, in extremely ungrammatical phraseology:

"1. In applying for the examination for the de-

gree of Doctor, no evidence of Medical Studies is required, further than the passing of the Examination."

Not only no lectures, but no pupilage, no evidence as to time of study, and the University expressly states that no such requirements are demanded. What a howl would go up all over the world if an American medical college should publish such an announcement to intending medical students?

Many of our State Examining Boards have passed resolutions to the effect that after a certain specified date they will not recognize the diplomas of schools which do not require attendance on three full courses of lectures. The resolution of the California State Board of Examiners is as follows:

"Resolved, that on and after April 1, 1891, the Board of Examiners of the Medical Society of the State of California will not grant certificates to practice medicine on diplomas issued after that date by colleges which do not require that all candidates for graduation shall have studied medicine not less than three full years, and shall have attended not less than three full regular courses of lectures delivered during three separate years."

If these Boards stand by their announced resolutions they must throw out the diplomas of Heidelberg and many other prominent German Universities, which by their own published regulations show that they do not come up to such a standard as our licensing boards require.

The regulations of the University of Munich (München), are expressed in such broad terms, that it is evident that almost any kind of a medical education would comply therewith. They state as follows:

"Candidates, before being admitted to the Doctorate Examination, must present to the Medical Faculty the following:

1. A Gymnasial certificate, or at least such certificate as shows that the candidate has enjoyed a regular education.
2. Certificates of at least four years' attendance at a University or Medical Institution, and of attendance at the Lectures on the "principal branches of Natural Science and Medicine."

Then follow requirements for certificates as to the candidate's "assistance at a birth, and the application of a bandage," and others equally trifling, after which comes a verbal examination of two hours in the German language, a dissertation written in Latin or German, and fees to the amount of \$75. This standard is far below that of the poorest of the American colleges. The term "regular education" in paragraph 1 may mean anything, and the "Medical Institution" of paragraph 2 would cover any sort of a concern which the Faculty chose to accept. So also the "Lectures on the principal branches" does not define the number of lectures, by whom, or the branches lectured on; and the verbal examination leaves no evidence behind to act as a check

² "Medical Education and Practice in all parts of the World," by H. J. Hardwicke, M.D. London, 1880, page 85.

³ Op. cit., page 88.

upon the Faculty. In fact, the standard of the University of Munich for the degree of M.D. is ridiculously low; and if such regulations were promulgated by an American college, its diploma would be discredited by all our State Boards and Medical Societies.

The regulations of the Universities of Berlin, Leipzig, Bonn, Würzburg, etc., are more definite, and require from three to four years of regular attendance at a medical school. The Austrian Universities are all under the same rule, requiring at least five years of work in the medical school, the course occupying nine months in each year.

To all this, the Germanophile will reply, that the quality of the examinations is such that no unworthy candidate can pass. Of this we have no evidence but the official discrediting of these examinations by the State, which is rather against than in favor of their high rank.

A German physician now practicing as a specialist in one of our large cities, and a graduate in medicine of the University of Würzburg, as recently as 1884, told me himself that although an M.D., of that University he could never practice there, for he could not be admitted to the State Examination, not having gone through the proper gymnasium before entering the University. This shows that the degree of this University is granted with very little adherence to governmental regulations; and exhibits a rather anomalous state of affairs, that a man should be an M.D. of a leading University in a country where he never can obtain authority to practice medicine. Yet this man practices here on that degree, and freely abuses the educational institutions of the country which has been so much more generous to him than the land of his own educational career.

To recapitulate then, we see that the medical degrees of German Universities are discredited by the German authorities, and do not entitle their holders to practice in Germany:—that one leading German University, as late as 1880, announced in its regulations that it did not require any attendance at lectures, or anything else, as a prerequisite to examination for its degree of M.D.:—that another leading German University uses the term "*Medical Institution*" in defining the term of study required of candidates, with other equally indefinite requirements:—and that the quality of their final examinations is just as much an unknown quantity as it is in any other country.

British Medical Education is based upon a much higher standard than that of Germany in respect of the guarantees it gives of the possession of definite qualifications. A British degree or other "qualification" in medicine means that its owner is a man of a certain definite general education, who has received a strictly specified amount of medical training, gone through a certain amount of medical study, and passed exami-

nations as searching as it is possible for examinations to be.

Our evidence for this assertion is three-fold. In the first place the British government accepts the British college diploma as evidence of professional fitness, and makes it its business to see that the diploma has this value. In the second place, the candidate for a diploma is not examined therefor by the men who have taught him, but by a different set of Examiners, who know him only by a number: the Royal Colleges having no teaching powers, and the teaching schools having no power to grant diplomas of any kind. The college examinations in England, therefore, occupy the same place as the German State Examinations; but, being in the accredited position they are, their diplomas mean something; and the anomaly is avoided of having Doctors of Medicine who are not entitled, to practice their profession under the laws of the very country which conferred on them the degree of M.D. through its chartered agent, the University.

In the third place, a British medical student is surrounded by definite rules at every step of his course. He must register under the law the fact that he has begun his study; he must pass a preliminary examination in general education before he can so register, the subjects of which are strictly defined;—he must spend so many sessions at a regularly approved hospital, in practical work;—he must attend so many lectures at a regular school on each specified subject;—he must receive certain definite practical instruction, dissect so many months, and finally, after not less than four years from the date of his registration as a student, he must pass certain examinations, in part oral, in part written, before a body of Examiners having no interest whatever in the school where he was taught,—men who have never exposed their hobbies to him in lectures, and who do not even know where he received his training. The public is guaranteed that every man who receives a British diploma has gone through this strictly prescribed course, and therefore it can rely upon the fact that the graduate has been properly prepared for his professional work, so far as human institutions can accomplish such preparation. The General Medical Council controls everything pertaining to medical education and registration in the kingdom,—and is a representative body, being composed of one member elected by each of the seventeen colleges, universities, and other qualifying bodies, with six others appointed by the crown.

In making any comparison between the educational standards of two countries, it is impossible to consider the maximum requirements or work done for any degree or other reward, the maximum always varying with each individual student. The only feasible standard of comparison is the *minimum*, the least possible amount of

actual work, time, etc., required to make the student eligible to a certain place or position. Another reason for this position is found in the universal experience of educators that the majority of students will seek the institutions which demand *the least* expenditure of time, work and money, in return for a certain, respectable degree. This is a law the world over, and instances to the contrary are only exceptions to the rule. When the foreign medical man criticizes our methods, it is our *minimum* requirements which he looks up and sneers at. Let us look at the *minimum* requirements for the medical diploma in another of the great countries with which we have most frequent association in matters medical.

The British course of medical study is laid down at *four years* at least; that is to say, the candidate cannot present himself for his final examination until the expiration of four years from the date of his registration as a medical student. So far,—so good!

When, however, we look at the requirements laid down for the various courses of study of which the period of four years is made up, we will find some things which are new to many an American graduate who has spent two faithful years at college, with one previous year or more of pupillage, and then has listened to a Canadian graduate's abuse of the American short term of study.

In the first place, the English student is permitted to spend, out of the four years, one year and a half, or "*one winter session and two summer sessions, receiving instruction as a Pupil of a legally qualified Practitioner holding such a public appointment, or having such opportunities of imparting a practical knowledge of Medicine, Surgery or Midwifery, as shall be satisfactory to the two colleges.*" I quote from the most recent regulations for the Conjoint Examination by the Royal College of Physicians of London and the Royal College of Surgeons of England.

Now, this means the old system of preceptorship which we have always had in addition to our college courses, but which we never counted in speaking of a student's education; and which our colleges are now dropping entirely, and replacing by a third year in college, for reasons which seem good to the profession over here. When an Englishman speaks of our 2 years' course as against his 4 years, he forgets, or perhaps does not know, that our 2-years' colleges always required a previous year of pupillage, and that his own colleges permit 1½ years of their 4 years to be spent in the same way.

This reduces the obligatory period of actual work for an English diploma to 2½ years; but does he spend this 2½ years attending lectures? No, indeed!—he is only obliged to attend lectures for ½ year, one college term of six months. The rest of the 2½ years he is required to put in at-

tending, "*at a recognized Hospital or Hospitals, the Practice of Medicine and Surgery.*" The obligatory course of lectures includes on

Medicine and Surgery,—6 months each, 3 a week on each subject.

Anatomy,—6 months, or one Winter Session.

General Anatomy and Physiology,—6 months, 3 lectures a week.

Midwifery and Diseases peculiar to Women,—3 months.

Pathological Anatomy,—3 months.

Forensic Medicine,—3 months.

Attendance on lectures on Eye and Ear Surgery, and other special branches, as Histology, Microscopy, etc., etc., is optional with the student.

The 2½ years of actual work is thus seen to include only *one course of lectures*, the rest of the time being spent in the Hospital Service of the Medical School, including service as a clinical clerk and surgical dresser, clinical lectures in the wards, and other practical instruction. This hospital attendance must cover 3 Winter and 2 Summer Sessions, or 2½ years, the whole period not covered by the pupillage of 1½ year: so that evidently the six months' course of lectures is attended at the same time as the hospital service, by one who is doing the minimum time. This is borne out by the following extract from the announcement of St. Bartholomew's Hospital and College, for 1888-1889:

"With reference to Professional studies, other than those in a Medical School, it should be remembered that only 18 months of such studies are recognized by the College of Physicians and the College of Surgeons. Their Regulations require that *at least two years and a half* of the requisite four years of Professional study shall be passed at a *Hospital Medical School*; while, of course, the whole of the four years of compulsory Professional study may be so passed with advantage."

SUMMARIZING THE MINIMUM WORK for an English Diploma, we have—

- (1). Preliminary Exam'n in General Education, followed by Registration.
- (2). Pupillage with a legally qualified and approved Practitioner 1½ year.
- (3). Exam'ns in Anatomy, Physiology, etc., at various times during the course.
- (4). Attendance on the { Practice of an Hospital Medical School
—the Hospital Service 2 years.
Lectures of an Hospital Medical School
—one Winter Course ½ year.
- (5). Final Exam'n in Medicine, Surgery and Midwifery, after the minimum period of 4 years.

American Medical Schools must now claim our attention, and though it may seem a trite subject to many of you I trust that I will be able to present some new views and interesting features of their work for your consideration. Let us inquire into the minimum amount of work required from the American medical student!

Foreign medical men believe that in many American colleges a medical student can graduate

after six months' study. I will acknowledge that, and go further, and say that he can graduate without any study at all, if it so please him. The strongest and most arbitrary governments, with all the exercise of their power and resources, have never been able to entirely stop counterfeiting and smuggling,—both of which offences are constantly going on to some extent. How, then, is it possible for a profession, loosely organized, having no power or resources, to prevent the issuing of fraudulent medical diplomas by criminals who choose to manufacture such documents and sell them to others equally criminal? Such things have been done,—are being done,—and will be done to the end of time! They are more easily done in a new country than in an old one: they are exposed when found out, and the guilty parties punished when a jury can be found to convict them. In some few cases, similar fraudulent practices have been perpetrated under legal cover,—as in the case of the Buchanan College at Philadelphia, the proprietor of which had stolen an old charter, issued forty years before for a college which was never organized. This charter was forgotten, but had never been repealed by the legislature; and under it Buchanan and his faculty of Methodist ministers worked, and sold diplomas for several years. So also, in the case of the fraudulent school started a few years ago in Jefferson County, Kentucky, under the name of the *Jefferson Medical College*, expecting to trade on the reputation of an eminent school in Philadelphia, then over 60 years of age, having 10,000 alumni, and a faculty which always included the most honored names in the American medical profession. A similar instance was the recent attempt to erect a fraudulent medical school in Boston, under the name of the *Bellevue Medical College*, stealing the title of a renowned New York college which is known all over the world.

The Berlin college authorities recently told our students, (and individual Englishmen often echo the idea), that they cannot distinguish between our good and our bad schools, and hence must reject all. When they have any money to invest in our railroad bonds, our brewery stocks, or our mining corporations, they make it their business to so distinguish between the good and the bad,—between companies controlled by honest men, and those which are run by thieves. They know the difference between Ontario and Emma mining stocks;—they do not reject all our securities from their financial consideration because some are bad; and they can just as easily ascertain which of our schools are deserving of their respect, and which are not so. Three hours' work of a medical attaché to the German embassy at Washington would obtain all the needful information, if they desired it.

AMERICAN MEDICAL COLLEGES, good, bad and indifferent, may be arranged in the following four classes, viz.—

(1). Medical colleges which require a preliminary examination before matriculation,—3 full courses of lectures in all branches, of not less than six months each, in not less than 3 calendar years,—and pass examinations during the course;—with full clinical instruction, 3 days in a week, throughout the terms,—before the student is admitted to the final examination. Many of these schools have even higher requirements than the above, having graded classes, with pass examinations from one to the other; an optional and recommended course of 4 years in college; and require attendance on one or more of their Summer Courses before final examination.

In this class are the Medical Schools of the following Universities,—Harvard, Pennsylvania, Michigan (including the Homœopathic Department of the latter), Cooper Medical College of San Francisco, Jefferson Medical College and the Medico-Chirurgical College of Philadelphia, the College of Physicians and Surgeons of New York, the Boston University School of Medicine (Homœopathic), and a large number of others, embracing colleges in all the larger cities of the country, hardly to be distinguished from each other in the excellence of their teaching, the high professional standing of their Faculties, the strictness and honesty with which they carry out their requirements, and the high character of their graduates. This class includes about 60 per cent. of all the recognized schools.

(2). Medical Colleges requiring as pre-requisites to final examination, 2 full courses of lectures in not less than 2 calendar years, and a previous year of pupilage with a recognized practitioner. Many of these schools have an entrance examination, some adopted the 3-years' plan for a while, and abandoned it when their classes fell off; and most of them have announced their intention to shortly adopt the compulsory 3 years' college course. Such are the Medical Departments of many State Universities, including those of Oregon, Maryland, Iowa, Vermont, Virginia, etc., the University of the City of New York, of Georgetown, and the following colleges,—Bellevue, Yale, Rush, Miami, Ohio, etc.—the full list comprising many of the very best teaching schools in the country, and about 35 per cent. of all the recognized schools.

(3). Medical Colleges having no preliminary examination, and only requiring 2 courses of lectures, not necessarily in 2 calendar years, however, before admitting to the final examination. The list of these schools, though a very small one, is too large unfortunately; and sometimes a case occurs which would seem to throw a school, of which better things are expected, into this category. Their names cannot be given, inasmuch as to do so would only direct students to them, and aid them in their nefarious practices. They are known sufficiently well by every phy-

sician who has had a young man leave his neighborhood, and return after a year or so with a diploma and the title of Doctor of Medicine. They include about 5 per cent. of the recognized schools.

(4). Unrecognized Colleges and other Institutions issuing diplomas which are not accepted by any of the State Examining Boards, or by Medical Societies as a basis of membership. Several lists have been published from time to time of these so-called Colleges. The following is that published by the Iowa State Board of Medical Examiners, as embracing the schools which are not recognized by it. Most of them have no real existence, but would be found in the garret of some quack doctor's house, or in a place for giving hot baths, as was the case in one instance personally known to the writer.

NOT RECOGNIZED.

Diplomas from the following Colleges are *not* recognized by the Iowa State Board of Medical Examiners. For what reasons it is not stated:

American Eclectic College, Cincinnati.
American Health College, Cincinnati.
American University of Pennsylvania (Buchanan), Philadelphia (now suppressed).
Beach Medical Institute, Indianapolis.
Bellevue Medical College of Massachusetts.
College of Physicians and Surgeons, Buffalo, N. Y.
College of Physicians and Surgeons, Milwaukee.
Eclectic Medical College of Philadelphia.
Edinburgh University, Chicago and St. Louis.
Excelsior Medical College, Boston.
Hygeo-Therapeutic College, Bergen Heights, N. J.
Hygeo-Therapeutic College, New York City.
Joplin Medical College, Joplin, Missouri.
Livingstone University, Haddonfield, N. J.
Medical Department of the American University of Boston, Boston.
New England University of Arts and Sciences, Boston.
New England University Arts and Sciences, Manchester, N. H.
Penn Medical University, Philadelphia.
Philadelphia University of Medicine and Surgery, Philadelphia.
Physio Eclectic Medical College and Physio-Medical College, Cincinnati.
St. Louis Eclectic Medical College, St. Louis.
St. Louis Homœopathic Medical College, St. Louis.
Curtis Physio-Medical Institute, Marion, Ind.
American Anthropological University of St. Louis.
Medical Department of Drake University, Des Moines, Iowa.
King Eclectic Medical College, Des Moines, Iowa.

It will now become evident, to those who have followed me, that the vast majority of the schools of this country require 3 years attendance on lectures and clinics in the college;—that nearly all the others require 1 year of pupilage and 2 years of college work,—and that the recognized schools falling below this latter standard are very few in number, and by the end of next year they will all be obliged to advance their standard to the 3-years' basis, on penalty of being discredited by the State Licensing Boards which have so declared their determination.

In comparing the *Minimum Time* spent by the

American and the English Medical Student, we have their time as follows:

COLLEGES OR SCHOOLS OF MEDICINE.	Tot. Years. of Pupilage with a Practitioner.	Total Years of Actual Work in Medical School.		Tot. Years in Full Course of Study.
		Hospi- tal.	Lec- tures.	
		2	½	
Conjoint Examination for diplomas of Roy. Coll. of Phys., London, and Roy. Coll. of Surg., England.	1½			4
American Schools of 1st Class, numbering 60 per cent. of the whole.	..	3		3
American Schools of 2nd Class, numbering 35 per cent. of the whole.	1	2		3
American Schools of 3rd Class, numbering 5 per cent. of the whole.	..	2 (?)		2 (?)

So, then, as far as time is concerned, in our first-class schools we require 3 years of actual work to the English student's 2½ years;—in the second-class schools we require 2 years of actual work to the English student's 2½ years; and in our third-class schools everything is doubtful, but they form an insignificant part of the whole, and are located in small cities where their attendance is very slight.

Now, let us look at the *Minimum Work* done by a student in the school I know best, being that in which I have the honor to occupy a chair, the *Cooper Medical College of San Francisco*. In this school, one of the best of the First Class, the student must make, by roll-calls, at least 80 per cent. of the following schedule, before final examination, excepting the number of Months, which represents the actual minimum working time in the three years of the college course, for each branch of study.

COOPER MEDICAL COLLEGE, SAN FRANCISCO.

No. of Mos.				Branches of Study.	No. of Lec- tures.				No. of Clin- ics.				Tot. of Lect. and Clinics.
1 year.	2 year.	3 year.	Total.		1 year.	2 year.	3 year.	Total.	1 year.	2 year.	3 year.	Total.	
5	5	8½	18½	Anatomy	60	60	76	196	..	..	..	..	196
5	5	8½	18½	Anatomy, Demonstra-ns	20	20	52	92	..	..	..	..	92
5	5	..	..	*Anatomy, Dissections.	..	..	..	..	..	..	..	..	..
5	5	..	..	Physiology	60	60	..	120	..	..	..	..	120
5	5	8½	13½	Materia Med. and Thera.	60	60	76	136	..	..	..	..	136
5	5	8½	13½	Chemistry	40	40	32	112	..	..	..	..	112
5	5	8½	18½	Medicine	60	60	76	196	80	144	224	420	420
5	5	8½	18½	Surgery	60	60	76	196	80	144	224	420	420
5	5	8½	18½	Obstetrics	40	40	40	120	..	..	..	..	120
5	5	5	15	Diseases of Women . .	40	40	40	120	20	36	56	112	112
5	5	5	15	Diseases of Children .	20	20	20	60	20	36	56	112	112
5	5	8½	13½	Eye and Ear Diseases .	..	16	16	..	60	92	152	168	168
5	5	8½	13½	Micros. and Histology .	40	40	56	136	..	..	..	..	136
..	3½	3½	7	Pathology, Demonstr.	..	16	16	..	..	..	..	..	..
..	3½	3½	7	Mental Diseases . . .	..	16	16	..	..	..	..	..	..
..	3½	3½	7	Physical Diagnosis . .	..	16	16	..	..	..	..	..	..
5	5	8½	13½	Nervous Diseases . . .	..	..	..	..	20	36	56	112	112
5	5	8½	13½	Genito-Urinary Dis. . .	..	16	16	..	20	36	56	112	112

* Five parts at least. † Taught also in every clinic.

The Intermediate Course occupies 3½ months, from January 15 to April 30; it is obligatory on the third-year students, but is largely attended by

those of the second year. The Regular Term occupies 5 months, from June 1 to October 31, and is obligatory on all three classes. Ten clinics are held at the College every week in the entire calendar year; and 4 clinics are held at the City and County Hospital every week by the Clinical Professors of Medicine and Surgery. The student's daily work begins at a clinic at 8 o'clock A.M. on Monday, and continues every week-day to 5:30 P.M. except Saturday, on which day it ends at 4 P.M. This does not include extra-mural quizzes, and other optional work which is always going on during the term. In the Intermediate Course 16 Lectures and 16 Clinics are delivered in each week; in the Regular Course the weekly exercises number 24 Lectures and 15 Clinics. The Practical Anatomy is counted by parts of the subject, five parts, dissected to the satisfaction of the Demonstrator, being required of every student. Pass examinations are held at the end of every term, a Preliminary Examination is required before matriculation of all non-graduates in arts, and the Final Examination for the Degree is both written and oral, occupies nearly two weeks, and includes practical examinations at the bedside by the Clinical Professors of Medicine and Surgery. Besides the above, each member of the Faculty constantly quizzes his class either in the clinic or the lecture-room,—and knows thereby the exact standing of each student long before the final examination arrives.

Such is the minimum work in one school; its maximum varies with the individual students. Several voluntarily take a four-year's college course, all who can get such appointments, spend a year after graduation as internes in the various hospitals of the city and State;—some go abroad every year for a post-graduate course in Berlin, Vienna, Edinburgh or London; a few go up for the Army and Naval examinations; and several are obliged to remain or go elsewhere, having failed in the final examination.

It is not our policy to reject men at the final examination, if we can help it; but rather to weed them out at the end of their second year. If, at that time, we see that a student is not up to the standard, he is quietly advised of the fact, and he does not enter the third year's class. As a result of this policy we find our final rejections are few in number, a fact which is often misrepresented by persons who do not care to examine into the truth of the matter.

The self-sacrifice shown by our Faculty is but a sample of what is shown in nearly all our medical schools. Each member of ours gives, on an average, ten hours of his time weekly to college work, exclusive of the hours spent in preparation, and not one draws a cent from its treasury. Our President and Founder, L. C. Lane, A. M., M.D. (Jeff.), L.L.D. (Union Coll.), M.R.C.S. England, M.D. (Berlin Univ.), has spent of his own private

funds fully \$250,000 on our building and site; and this in the evening of his career, after his professional triumphs have been won, and when he has nothing to obtain in honors, for he has received them all, from either his profession or the community. Such noble work as this is being done throughout the land by great-hearted men; and it is inexpressibly provoking to see the results of their self-abnegation referred to with contempt by others, who never in their lives gave a dollar or a minute to the cause of medical education.

One of our college experiences may prove interesting to our critics over the water. We have applications every year for admittance, asking short terms and guaranteed graduation, from people who do not know our methods; but fully 90 per cent. of such applications come from the English colonies in Australia, Tasmania, New Zealand and British Columbia, from would-be physicians who have read in English medical journals that medical diplomas are to be purchased here in open market. These applicants always state that they cannot afford to stay very long, and usually add the remark that expense is no object. Our Dean replies to all such by sending a copy of our Announcement, and adding the information that its requirements are strictly adhered to. Our organic law forbids our conferring an honorary degree, or even a degree *ad eundem*.

Some few English medical men have given credit to American medical colleges for what they are doing. For example, in the preface to the book already cited, Dr. Hardwicke says: "In some of the States of the Union there exist a great number of first-class and highly respectable Universities and Medical Colleges, capable of affording as good and sound an education as can be obtained in Europe. *Harvard, Pennsylvania, New York, Bellevue and Jefferson, are names honored as much in Europe as in America.*"

Unfortunately, however, there are many instances of a less fair spirit among English medical writers. The following is a recent and most glaring instance:

"AMERICAN DEGREES."

"Having written a reliable friend in the United States of America for information respecting a certain American Degree, he kindly writes (October 10, 1889) 'The enclosure bears on your enquiry.' The following is the 2, 1889:

"Degrees are acquired in the United States with alarming facility. The *North American Review* for October contains a very instructive, if somewhat alarming article by Drs. Eggleston, Flint and Doremus, in which, under the title 'The Doors Open to Quackery,' the writers discuss the present methods by which professors of the art of healing are manufactured in America, and turned loose upon a luckless community. Dr. Eggleston says that there are 'not a dozen American medical colleges out of 117 that would be tolerated for a moment in any country that pretends to be civilized;' and this, despite the efforts of the best men in the medical profession, which are openly combated or secretly threatened."

Table showing Work of Students in certain AMERICAN MEDICAL COLLEGES, also the same
ject the number of *hours occupied per week* of obligatory terms, and the *Total Number*
ments for 1888-1889, by SAM'L O. L. POTTER, A.M., M.D., Pro-

AMERICAN.	College of Phys. and Surg., New York.* (Obligatory course.)				Cooper Medical College† of San Francisco. (Obligatory course.)				Jefferson Medical College of Philadelphia. (Advised course.)				College of Physi- cians and Surgeons. Chicago. (Advised course.)				Medico-Chirurgical College of Philadelphia. (Obligatory course.)			
	1	2	3	Total.	1	2	3	Total.	1	2	3	Total.	1	2	3	Total.	1	2	3	Total.
ANATOMY, Lectures.	3	3	..	204	4	4	4	290	5	3	..	200†	6	7	..	286	3	4	2	216
Dissections.	6	4	..	340	10	5	..	300	10	5	..	375	10	5	..	350	8	1	..	204
PHYSIOLOGY, Lectures.	3	3	..	204	3	3	..	120	3	3	..	150	6	..	..	132	3	4	..	168
Histology and Micros.	4	..	1	170	2	2	2	135	..	4	..	100	3	..	..	66	4	1	..	120
CHEMISTRY AND PHYSICS.	3	3	..	204	2	2	2	115	3	6	..	225	8	..	..	176	7	4	..	264
Med. Chem. & Urinalysis.	4	..	..	136	..	..	1	20	..	1	..	25	..	5	4	198	..	2	..	48
MAT. MEDICA AND THERAP.	..	3	3	204	..	3	3	135	5	5	..	200	3	3	..	132	2	3	2	156
Jurisprudence.	..	..	..	..	..	..	..	..	..	1	..	25	..	1	..	22	..	1	..	24
Pharmacy.	..	..	..	..	..	..	..	..	..	2	..	50	..	..	..	..	2	1/2	..	60
Pharmacology.	..	..	..	..	..	..	..	..	..	1	..	25	..	..	..	..	..	..	..	..
Hygiene.	..	..	..	..	..	..	..	..	..	1	..	25	..	1	..	22	2	..	..	48
MEDICINE, PRIN. AND PRAC.	..	3	3	204	3	3	3	195	3	3	3	225	..	4	..	88	..	4	5	228
Med. Pathology.	..	..	1	34	..	..	1	15	..	4	4	200	1	2	..	44	1	4	1/2	120
Phys. Diagnosis.	..	..	..	..	..	..	1	15	..	..	3	75	..	1/2	..	12	..	1	1/2	36
Mental Diseases.	..	..	1	34	..	..	1	15	..	..	..	..	..	2	..	44	..	..	1	24
SURGERY, PRIN. AND PRAC.	..	3	3	204	3	3	3	195	3	3	3	225	..	..	4	88	..	3	4	156
Surg. Pathology.	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	22	..	..	..	..
Minor and Operative.	..	..	..	..	..	..	..	..	..	4	..	100	..	..	1	22	2	..	1	72
Dental.	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	22	..	..	..	..
Orthopaedic.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	22	..	..	1/2	12
Genito-Ur. & Dermatology.	..	..	..	..	..	1	..	15	..	..	..	..	..	2	..	44	..	2	..	48
Ophthalm. and Otol.	..	..	1	34	..	..	1	15	..	..	..	..	..	1	1	44	..	..	..	..
Laryngological.	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	22	..	..	..	..
OBSTETRICS.	..	3	3	204	2	2	2	120	..	3	3	150	..	..	4	88	..	2	3	120
Gynecol. and Padol.	..	..	..	..	3	3	3	240	..	..	4	100	..	..	2	44	..	..	..	..
CLINICS, Medical.	..	2	..	68	..	4	4	220	7	7	7	525	..	5	5	220	..	3	4	168
Surgical.	..	4	..	136	..	4	4	220	7	7	7	525	..	5	5	220	2	5	6	312
Gynecol. and Padol.	..	..	1	34	..	2	2	110	1	1	1	75	..	1	1	44	..	1	4	132
Nervous.	..	..	1	34	..	1	1	55	..	..	..	..	..	..	..	..	..	..	..	..
Ophth. and Otol.	..	..	3	102	..	3	3	155	1	1	1	75	..	1	1	44	..	1	..	24
Genito-urinary.	..	..	1	34	..	1	1	55	..	..	..	..	..	..	..	..	..	..	..	..
Other Clinics.	..	..	..	..	..	..	..	..	..	..	..	..	..	6	6	264	..	..	..	..
DISPENSARY AND HOSP. WORK.	..	..	..	..	..	2	2	110†	..	..	3	75	..	..	..	..	..	..	..	..
Recitations.	Roosevelt Hospital				Weekly each chair.				Private quizzes				Daily in College.				Daily in College.			
Hospital with College.	Vanderbilt Clinic.				City and Co. Hosp.				Jefferson Col. Hos.				Cook Co. Hospital.				Med. Chir. Hosp.			
Dispensary with College.	..				Morse Dispensary.				At Hospital.				At College.				At College.			
Course. { Preceptor	3 or 4 years.				3 or 4 years.				1 year.				1 year.				3 or 4 years.			
College. { College.	Required.				Required.				2 or 3 years.				2 or 3 years.				Required.			
Entrance Examination.	Yearly.				Yearly.				Required.				Required.				Required.			
Pass Examinations.	3 after 2d year.				2 after 2d year.				4 after 2d year.				3 after 2d year.				3 after 2d year.			
Final Examinations.	Introductory.				2 weeks.				2 weeks.				3 after 2d year.				3 after 2d year.			
Sessions yearly { Regular.	34 weeks.				15 weeks.				7 "				22 weeks.				24 "			
Spring. { Spring.	102 weeks.				75 weeks.				75 "				66 "				72 "			
Obligatory Sessions.	33				21				18				36				41			
No. of Instructors.	809				126				584				162				151			
No. of Students.	115				41 2/3				176				46				30			
No. of Graduates.	\$500				\$315				\$325				\$210				\$255			
Total Fees.	W. H. Vanderbilt.				Dr. L. C. Lane.				Trustees.				Faculty.				Dr. Pancoast, et. al.			
Endowed by.	Buildings, etc.				Buildings, site, etc.				Buildings, site, etc.				Buildings, site, etc.				Buildings, site.			
How Endowed.	\$500,000				\$300,000				\$350,000 (?)				\$50,000 (?)				\$100,000 (?)			
Value of Endowment.	..				..				..				..				..			

* Based on an estimated number of three lectures a week from seven principal chairs.

† Exact figures, the 3d year having an obligatory Spring Course of 15 weeks, besides the regular course.

‡ Taught in the clinics in every college, though often not mentioned in announcements.

§ Includes two by the Demonstrator every week.

|| Estimated; taking the average time occupied in dissecting the five parts usually required.

P—Private classes in this subject, for which extra fees are charged by the instructor.

¶ In the Dispensary Medical Clinics of this College, the senior students are assigned by twos to each patient, whom they examine under the supervision of an assistant, making a full report with treatment, diagnosis, etc., on a blank form to the Professor in charge, who goes over the work with them in presence of the entire class. A similar method is pursued, somewhat modified, in the other clinics (10 in all), so that the senior student, during the two terms of his third year at college, personally examines and prescribes for, on an average, over 100 cases of disease before graduation. This is one of the advantages of having many medical colleges, with small classes, instead of a few schools in the great

cities, with classes so crowded that these personal advantages are impossible of realization to the average student in their halls.

§ This graduating class was twice as large as the average of this school, and included several graduates of other colleges, and several "accumulations" from previous classes.

NOTES.—In selecting the colleges to be tabulated herein I have avoided taking all of the very best, omitting Harvard, University of Pennsylvania, University of Michigan, etc., and in their stead taking three "two-year" schools, so as to give a fairer average. In doing so, however, I have tabulated the "three-years' advised course" of these schools, for the reason that after this year (1890) they adopt the compulsory three-years' course.

The difficulty of tabulating the varying requirements on one form has been very great, from the fact that some schools omit to designate particular hours for certain subjects, which are known to be taught therein. For example, Hygiene is given a definite hour by three schools, in another it belongs to the chair of Practice, and in another to that of Materia Medica, without any assigned hour in either case. Though left blank in the table it must not be inferred that this subject is ignored by these schools.

The daily work of the English students is very difficult to understand in tabular form, for one who is not thoroughly acquainted

required for an ENGLISH QUALIFICATION IN MEDICINE AND SURGERY; giving for each sub-
of Hours so occupied for the entire Course of Study. Compiled from the Announce-
fessor of Medicine in the Cooper Medical College of San Francisco.

Bellevue Hospital Medical College, of New York. (Advised course.)				ENGLISH.		Double Qualification, L.R.C.P. (Lond.), M.R.C.S. (Eng.) St. Bartholomew's Hosp. and College Regulations, 1888-1889.								REMARKS.	
						Years.									
				Sessions.		1st year.		2d year.		3d year.		4th year.		Total Hours.	
				Weeks.		S.	W.	S.	W.	S.	W.	S.	W.		
1	2	3	Total.			12½	22½	12½	22½	12½	22½	12½	22½		
3	3		144	ANATOMY, Lectures.	May be spent as the private pupil of a recognized practitioner.									90	
6	4		240	Dissections.	May be spent as the private pupil of a recognized practitioner.			4	4					12 mos.	
3	3		144	PHYSIOLOGY, Lectures.				Daily	Daily					67	
		P.		Prac. Physiology.				1½						35	
2	2		96	CHEMISTRY AND PHYSICS.				5						62	
½	½	P.	24	Prac. Chemistry.				6						75	
3	3		144	MAT. MEDICA AND THERAP.				4						50	
½	½	P.	24	Forensic Medicine.								3		37	
				Pharmacy.				Ins.						Inst'n.	
				EXAMINATIONS.				EX.	EX.						1st and 2d examinations. Optional.
				Hygiene.								1			
3	3	3	216	MEDICINE, Lectures.						3				67	
1	1	P.	48	Med. Pathology.							2	1		48	
½	½	P.	12	Phys. Diagnosis.						C.C.				6 mos.	C.C.=Clinical Clerk. Optional.
½	½	½	24	Mental Dis.							1				
3	3	3	216	SURGERY, Lectures.						3				67	
		P.		Surg. Pathology.							2	1		48	
½	½	P.	12	Operative.						3	4	3		185	
				Minor.								D		6 mos.	D.=Dresser. Optional.
1	1	1	72	Orthopaedic.								1			
1	1	1	72	Dermatology.								1			
1	1	P.	48	Ophthalmology.								2			
1	1	P.	48	Larynx.											
2	2	2	144	MIDWIFERY, etc., Lectures.							6			75	
1	1	1	72	Labors.										20	20 labors.
2	2	2	144	CLINICS, Med., Lectures.							1	1		35	
4	4	4	288	" Surgical, Lectures.							1	1		35	
1	1	2	88	" Gynecological.							1	½		24	
½	½	½	36	" Ophthalmological.								5			Optional.
				VACCINATION.						Inst.				Inst'n.	
				EXAMINATION.										EX.	
				DISPENS'Y AND HOSP. WORK.										92 wks.	FINAL EXAMINATION. * Refers to attend. on Med. and Surg. Prac. of Hosp. 3 winter and 2 sum. sessions.

In Spring Course.
Bellevue Hospital.
At Hospital
1 year
2 or 3 years.

4 after 2d year

24 weeks
10 "
48 "
50 "
441 "
137 "
\$325
Hospital
Buildings.
\$20,000 (?)

Recitations
Hospitals
Dispensary
Course, { Preceptor
College.
Entrance examination
Final examinations.
Sessions
Yearly.
Obligatory sessions
No. of Instructors.

Total Fees

No information.
St. Bartholomew's Hospital.
At Hospital
1½ years.
2½ years.
Required.
3 subjects after 1st college year.
2 subjects after 2d college year.
3 subjects after 4th year of course.
1½ winter session, 2½ weeks.
Summer session, 12½ weeks.
Three winter, 2 summer, = 92 weeks.
46

\$850, including examinations.

NOTE.—It will be urged by those who decry our methods and our institutions, that few English students get through on the minimum requirements of 4 years, of which 1½ may be in private pupilage. The same may be said of many American Colleges. In the Cooper, last year, the graduating class included one 5 year student, and three who spent 4 years in the school, some per force, some voluntarily.

The Phys. and Surg. of New York is al examina-
year, yet it
had the largest class in the U.S. in
1888-89, numbering in that year 809,
speaking well for the American medical student.

quacks, charlatans, and low class colleges. It clearly is not for want of degree granting colleges that the American doctor is less informed than his brethren in other countries, for it seems that, taking the average of all other countries as a fair average, there are schools enough in America to educate medical men for 300,000,000 people, but in most of them the standards for matriculation and graduation have been put down so low as to make an American diploma almost a reproach in other countries. It will be remembered that Dr. Rauch, of the Illinois

with their method of education. I have arranged this part of the table according to my most careful study of the recent regulations (1888-89). In the English table a figure not carried into the total column signifies that, though taught in the school, that particular subject is not required by the regulations for the final examination.

SAM'L O. L. POTTER.

330 Sutter St., San Francisco, May 1, 1890.

Board of Health, visited Montreal during the small-pox epidemic that raged in this city some months ago. Dr. Rauch was able to speak in terms of high commendation of the general sanitary regulations of Montreal, and the means it has at command for coping with zymotic disease. Dr. Rauch, it seems, put up a young journalist of Springfield, Ill., to try for a medical diploma from the Bellevue Medical College, Boston, Mass., the President of which is a rabid anti-vaccinationist. The diploma was granted and the reader will be interested by the perusal of the thesis on the strength of which this license to kill was issued.

'VACCINATION.

'The Grate increase of Disease in these Late years Calls for Explanation Undoubtedly the Doctors of this day is to blame for very much of it. But more than any-

thing Else in my opinion is the Inseartion into the Pure Blood and Vitle fluid of our Inosent offspring of that vile Diseases of the animals cowpox So grate has the Curse Became that Priviledges of School Edication is denied in this and Many other States to those who wisely refuse to Submit to this Curse that is just a Peace of the Non-sensikal Medica teachings of the Day when Theory and Imagination Rool instead of Practical Expearance and which keeps its Studends in close Confinement a Big part of three or four years to hear the Nonsens which is thear peddled out to them consumption Siffles and Skin Disease Runn Wild among the people This calls for a Strong Kick on the Part of our noble Profession which should seek to build upp the Health and Streangth of the People instedd of Planting the seeds of Diseas in them To Prove that Vacination Don't do no good we nead onlly to say that Thear has Been More Small Pox in this Place in the last year than thear was in the last Nineteen or Twenty year and more deaths from it I neadnt say no more About a Thing that is so Plane to Eny thinking Man or Woman Eather we should all Band ourselves together in all Parts of the Country to Shutt off this Cursed Practiss the People Should be Tought Better But the Days is Cumming when Enlightenment will take the Place of Ignoranse and Prejudice and when that Time Comes these fannatics who live by Scaring People will have to step aside and Vacination will not be Heard of any more."

[To save us in England from the deluge of worthless American degrees, there ought at least to be a law compelling the publication along with the degree of the source whence it was obtained.]—*Exch.*

The tone of this publication is exceedingly aggravating, putting, as it does, an impudent forgery and fraud upon a level with our medical schools, and insinuating that such degrees are "American Degrees," as it does by its title, as also by the mis-statements of its correspondent. If, in some backwards settlement of Canada or Australia, named *Oxford*, some two or three men should get together and style themselves a University, "*The University of Oxford*," issue diplomas to whoever would buy, making M.D.s, D.D.s, L.L.D.s, etc., and when the fraud was exposed and published, an American medical journal should quote the circumstance as an illustration of the value of English degrees, the case would be an exact parallel. When referring to the Buchanan fraud in Philadelphia, most Englishmen who know of it will use it as an illustration of the methods of Philadelphia medical schools; but will not tell that Dr. Buchanan was a graduate of the Faculty of Physicians and Surgeons of Glasgow, in Scotland;—that every one of his associate professors were Methodist Ministers, not physicians,—and that he and they are now doing a long term in the penitentiary for their fraudulent practices. As remarked before, imperial governments cannot entirely stop the practices of counterfeiting and smuggling, how then can we, without power of any kind, prevent forgery in our professional diplomas.

England and the United States should stand hand in hand, and shoulder to shoulder, against all the world besides; and if they only would do so, no power on earth could injure either of them. But depreciation of our institutions by English

writers makes Americans sulky and "ugly," as they say themselves, and they will not *try* to rectify erroneous beliefs regarding matters which should be better understood. They look to England as to a mother, and expect her praise and her encouragement in their progress upward and onward. They have so far received Englishmen as honored elder brothers; but some day they will turn upon this persistent misrepresentation, stop all free trade in medical diplomas of foreign manufacture; and, following Canada's example, force other nations to respect their educational institutions.

The history of the Canadian episode is very instructive in this connection. A few years ago some graduates of her medical schools were refused registration in England upon their Canadian diplomas; whereupon Canada, with becoming self-respect, passed laws requiring English medical immigrants to submit to local examination before being licensed to practice in Canada. At the very next session of the British parliament the government brought in a bill, which passed, and is now the law of Great Britain. This bill provides for the registration in Great Britain of graduates in medicine of *any country* which grants reciprocal rights to British graduates, provided,—that the Queen in Council has named a day upon which said law shall take effect for each State or Country. The Queen in Council speedily named a day for Canada, but has never yet done so for any State in the American Union. It would be interesting to see whether she would propose to do so for any American State which should legislate against the recognition of British medical diplomas.

When our difficulties are taken into consideration,—when it is remembered that every American State, young or old, governs its own educational matters;—that the central government has no control whatever over the practice of any profession, except in its own courts, and in its own military and naval establishments;—that, as yet, we have no endowments for our medical colleges;—that, under our democratic institutions every medical sect or delusion can obtain sufficient following to secure from the politicians charters for so-called colleges, with the right to issue diplomas;—that we have three distinct bodies of medical practitioners, recognized by law, viz.: the Regular, the Homœopathic, and the so-called Eclectic;—that every effort to secure the passage of laws to control medical practice and education is fought bitterly by two of these bodies, and by spiritualists, faith-healers, magnetic healers, Christian Scientists, metaphysical healers, electro-biologists, *et hoc genus omne*;—that juries in the large cities are often composed of the scum of European humanity;—that such juries will not convict the most flagrant violators of medical laws;—it is really a wonder that we have done as well as we have in this matter of medical education. Only by the

self-sacrificing labor of the much-abused Professors in our great schools, have these institutions reached the high standard which is conceded to them by all fair-minded investigators.

One fact, which is patent to all close observers of matters medical, and which is highly complimentary to American graduates, is that the great majority of the quackish members of the profession in this country is composed of foreign graduates. Leaving out of consideration the openly-acknowledged quacks, many of whom append foreign titles to their names, but whose claims cannot be verified, and looking at the recognized medical men who, in every community, are running in non-ethical paths, we will find 99 per cent. of them to be graduates of foreign schools. The men who erect blazing signs, brass hands with index fingers pointing from the side-walks to their offices;—who drive foreign-looking vehicles, and carry therein terrier dogs trained to bark at the passers-by;—who falsely claim to have received the Victoria Cross and other decorations before emigrating to America;—who wear décolleté shirts, and dress in the most blaze style;—who cover their waiting room walls with framed certificates from every dispensary they ever stuck their noses into, and fill their waiting-room chairs with charity patients as stool-pigeons for others;—who employ "cappers" and "steerers" at the railroad depôts and steamer landings;—who dazzle their callers' eyes with big brass microscopes, and pneumatic cabinets as large as a hotel safe;—who organize clubs for medical treatment, and take obstetrical cases at \$10. each, including nine days' attendance;—who seek appointments to Sons of St. George, Caledonian Societies, Turner-bunds, and Base-ball clubs, as physicians thereto;—in one word the men who are daily prostituting their noble profession, degrading it to the level of a trade, by adopting trade methods in lieu of professional dignity;—these are almost invariably medical immigrants, graduates of foreign medical schools. Not daring to practice such devices at home, they come to our hospitable shores, and with haughty contempt for our generous and free institutions, assume that "every thing goes, don't you know, in America!"

I would propose two remedial measures for these difficulties. The first is a suggestion that the American Medical Association memorialize Congress to institute, establish, and maintain, a *National Medical College* in Washington, for post-graduate special instruction and training for one year, of candidates for the Medical Services of the Army and Navy. That such school be open to all graduates of American Medical Colleges in good standing without regard to age;—that, the final examination passed, its diploma shall qualify for the Army and Navy for those within the proper limit of age;—and for all others shall

qualify for appointments on Pension Boards, the Indian Reservations, the Marine-Hospital Service, Surgeons in the State Militia, Acting Assistant Surgeons in all the services, etc. That all such graduates thereof be enrolled in an "*Army Medical Reserve Corps*," from which alone the government would appoint extra Surgeons in the Army and Navy in case of need, up to certain ages. Such a National Medical school would prove of inestimable value in consolidating and regulating the standards and requirements of our State medical colleges; and by establishing a fixed standard of professional acquirements, would be of great benefit to the people at large, and to the medical profession, without infringing on the rights of the States in educational matters.

Secondly—I would suggest that the American Medical Association proceed, by committee, to endeavor to obtain from England full legal and professional recognition for such of the graduates of our best schools who have evidence of equal preliminary education, and of four years' study before graduation, by showing to the English authorities that our 3-years' course is fully equal to their 4-years' one. This recognition, if obtained, would bind the medical men of the two nations in close bonds of sympathetic union; and do much towards advancing the pan-Anglo-Saxon Confederation which must some day be realized. It would stimulate our second-grade schools to the early adoption of a higher standard. It would make London, instead of Berlin and Vienna, the Mecca of our young graduates; and the resort of our weary practitioners, when seeking to combine relaxation with study in the great world-centres. These men would feel that as graduates of Harvard, Jefferson, Cooper, Physicians and Surgeons of New York, Bellevue, etc., they could enter the wards of the London hospitals with as much respect from the natives as an L. S. A. receives in those of Philadelphia or New York. Such recognition would enable our Thomases, Da Costas, Pancoasts, Bartholows, Lanes, Senns, Van Burens, Flints, etc., our princes of medicine and surgery, to feel that no suspicion rested upon them, when, as American Professors, they entered the halls of an English college. It would only be a simple act of justice to a national body of men which has done as much for medical science, and scored as many medical and surgical triumphs, as any other body of medical men throughout the world. There is no nation on the face of the earth so ready to do right, or right a wrong, as the English nation, even in the face of national humiliation, as seen in their treatment of the Boers and the Irish. Surely English medical men will prove no less tardy in this respect, if their past errors are shown to them in a clear and self-luminous light!

HYSTERICAL APHONIA, OR PARALYSIS OF THE LATERAL CRICO-ARYTENOID MUSCLES.

Read in the Section of Laryngology and Otology at the Forty-first Annual Meeting of the American Medical Association, Nashville, Tenn., May, 1890.

BY E. FLETCHER INGALS, A.M., M.D.,
OF CHICAGO.

One of the most interesting manifestations of the group of symptoms which make up what is termed hysteria, is paralysis of the adductor muscles of the vocal cords. It is a singular fact in accordance with what might be termed a conservative law of pathological selection, that in nerve trunks not larger than a small knitting needle, in this disease only those fibres are involved which supply the adductor muscles, while adjoining fibres supplying the abductor muscles are not implicated. This is peculiarly fortunate, for otherwise this merely annoying affection would often become a fatal malady.

This affection usually occurs in young women, but is sometimes observed later in life and has been met with even in children. Although termed hysterical, cases are not very infrequent among men.

As the name implies, the disease is usually associated with some form of hysteria, but it sometimes follows violent inflammation of the larynx, in which the congestion disappears but the paralysis remains for some time afterwards. It is occasionally the result of lead or arsenical poisoning; and it has been claimed that exposure to draughts, or even the taking of cold drinks, may in rare instances be the exciting cause. Gerhardt believes that it is frequently of rheumatic origin. I have recently seen two cases immediately following accidents, in one of which there was simply a shock with severe fright, while in the other there was said to have been a fracture of the cricoid cartilage. In this latter the paralysis remained many weeks after all evidences of fracture had disappeared.

Sir Morell Mackenzie states that purely functional aphonia is common in the second and third stages of phthisis, a fact which should cause us to carefully examine the lungs of all patients suffering from loss of voice.

Hysterical aphonia is usually suddenly developed, sometimes shortly after exciting causes which may be easily detected, but frequently these patients waken in the morning to find the power of speech gone, although phonation was perfect when they went to sleep. It is a peculiar characteristic of the affection that often only the voluntary power of phonation is lost, while the involuntary movements, as in sneezing and coughing, remain nearly normal. In these cases the sound in laughing may or may not be lost, as it is more a voluntary act.

On inspection the larynx usually has a normal

appearance, though sometimes moderate congestion and some swelling are present when the trouble has been preceded by catarrhal inflammation. In some instances the cords remain completely abducted and entirely motionless, on attempts at phonation; in others there is a considerable movement, but the edges are not properly approximated, while in rare cases, in which the hysterical element predominates, the cords approximate naturally but no sound escapes. In some instances a large triangular opening is left at the posterior end of the glottis, due to paralysis of the arytenoid muscle, though the lateral adductors may close the anterior portion more or less perfectly.

There is usually no difficulty in making an accurate diagnosis if the larynx is properly inspected, but there are some cases of acute catarrhal laryngitis in which paresis of the muscles occurs a short time before congestion has taken place, and these, excepting for their history, might be easily mistaken for functional aphonia. In pulmonary tuberculosis the voice not infrequently becomes very weak, or it may be entirely lost. Many of these cases are doubtless functional, as suggested by Sir Morell Mackenzie, but probably some of them are due to impairment of the recurrent laryngeal nerve resulting from the tuberculous process. Mechanical impediments may interfere with proper closure of the cords; for example, swelling of the mucous membrane, neoplasm, or partial or complete ankylosis of the cartilaginous articulations. These, however, can usually be readily distinguished by a careful laryngoscopic examination.

The prognosis as regards time varies greatly. Some cases respond promptly to treatment or even to the first examination so that the patient may leave the physician's office talking naturally after his first consultation. In these cases the symptoms may not return, though usually the attacks recur two or three times before a cure is effected. In others, weeks, months, or even years may elapse before the voice is thoroughly restored, but eventually nearly all cases may be cured. It is important, in the beginning, to assure patients of ultimate recovery but also, at least after the first treatment, to tell them that the exact length of time cannot be predicted.

Many forms of treatment have been adopted, and the most indifferent are occasionally successful. Sometimes with impressible patients even the laryngoscopic examination is all that is necessary. Slightly stimulating sprays, pigments, or powders are beneficial, especially when catarrhal inflammation exists, and they are doubtless useful for their psychical effects. Electrical stimulation of the affected muscles and nerves is advantageous in protracted cases. The most important part of the treatment consists in securing proper hygienic surroundings and diet, and the

administration of simple bitter tonics, or iron, quinine, arsenic, and strychnia. The last in full doses has seemed to me of more value than all the others. I believe that delay in effecting a cure often results from our timidity in the administration of this powerful nervous tonic. In the majority of cases the common doses of one-thirtieth or even one-twenty-fourth of a grain of sulphate of strychnia have little or no influence on the disease. These patients seem particularly tolerant of this remedy and often experience no physiological effects until heroic doses are resorted to. This is happily illustrated in one of the cases which I am about to report. In using electricity I prefer the static variety applied externally. Next to it I value the faradic current, and lastly the galvanic. Either of the latter may sometimes be successfully employed externally, but in obstinate cases at least one electrode should be applied within the larynx directly to the affected muscles. When the paralysis is of long standing, and the muscles consequently partially atrophied, this latter course seems to be especially desirable. It is unnecessary for me to say anything regarding the mode of administration of quinine, arsenic, and iron, but I wish to call your especial attention to the use of strychnia in large doses. This remedy should be given at first in small doses but these should be steadily increased until its physiological effects appear. I begin with one-thirtieth of a grain three times a day, and have the dose steadily increased from day to day or every second or third day, usually by the addition of one-sixtieth of a grain once, twice or thrice daily until the 24th, 20th, 18th, 15th, 12th, 10th, or even 8th of a grain is taken three times a day. It has been a surprise to me that most of these patients will take one-tenth or one eighth of a grain three times a day before any of the constitutional effects are manifested. I tell the patients what they are taking and what physiological effects may be expected, and then instruct them to reduce the dose or discontinue the use of the remedy as soon as these appear. It would undoubtedly be safer to prescribe these large doses in solution, but owing to the intense bitterness of the drug it is difficult to get the patient to take it regularly in this way, therefore, when the digestive organs are in fair condition I have risked either the small gelatine-coated pellets or freshly prepared capsules, but owing to the varying degree of solubility of the gelatine, I think the tablet triturates might be preferable. I have no fear of the so-called cumulative effects of the drug. It may be given alone or in combination with other remedies. I have had several cases in which from one-tenth to one-eighth of a grain had to be given three times daily, before the slightest constitutional effect could be detected. And until these occur but little benefit has been experienced. As soon as twitching or stiff-

ness of the muscles or intense nervousness is noted, the dose should be reduced to that taken one or two days previously, and afterward, owing to the increased susceptibility of the nervous system, it may be necessary to still further diminish the quantity from time to time, but the remedy must be continued in doses as large as can be borne for several weeks in order to prevent recurrence of the attack. The necessity for this is well illustrated in one of the cases that I am about to report, where it was not difficult to restore the voice but in which it was found impossible to maintain it for any length of time, until the heroic doses of strychnine were adopted.

While this course of treatment has been attended by the happiest results, I must urge those who try it to watch the effects carefully and to be sure that the drug is properly dispensed.

From many histories which I have of private patients affected by this disease, I have selected five which I think will be of special interest.

Case 1.—E. T. A., male, æt. 39. The patient came to me with a history of having lost his voice about three weeks previously while suffering from a bilious attack which immediately followed a sore throat from an ordinary cold. His father had died from throat trouble and a paternal uncle had been obliged to give up preaching from a similar cause. The general health was reported as good as normal but the patient did not have a robust appearance. He could only speak in a whisper.

I found on attempted phonation that the left cord remained in the cadaveric position, but the right was brought within about two millimeters of the mesian line. There was no congestion or swelling of the larynx. I used the static current externally and found that the patient was able to articulate quite distinctly at the time, though he resumed his whispering voice immediately afterward. I ordered strychnia sulphate one-thirtieth grain three times a day. Five days later the voice was much better. The strychnia was then increased to one-fifteenth grain and static electricity was repeated. Two days afterwards he was not quite so well. At this time I ordered quinia and iron in medium doses, continued the strychnia and repeated the application of electricity. Five days later—voice a trifle better but larynx appeared the same,—applied the faradic current by an endo laryngeal electrode. Patient saw me four or five times afterward at intervals of four or five days when essentially the same treatment was pursued but the strychnia increased to one tenth grain. He then left the city for a few weeks and on his return, four weeks later, I observed that on attempted phonation the left cord was crescentic but remained at the side of the larynx, and the right cord passed about four mm. beyond the mesian line leaving a chink about three mm. in width. He was not treated

frequently but the strychnia was continued in doses of one-tenth grain three times a day for about six weeks; making, in all, about four weeks during which he took one-fifteenth grain of strychnia three times a day, and ten weeks in which he took one-tenth grain three times a day; but he never felt its physiological effects. He then stopped taking medicine and for a couple of weeks patronized one of the popular superstitions of the day (Christian Science). After ten days of this, his voice returned and five days later was as good as ever. I examined his larynx six weeks later, at which time he said the voice was natural. I found the left vocal cord paralyzed in the cadaveric condition, slightly crescentic in outline. On phonation the right cord passed over to the left side nearly meeting the paralyzed cord so as to leave a chink not more than a mm. in width.

This case is of special interest from the probability that functional paralysis of the right cord was superadded to permanent paralysis of the left, the latter having never attracted the patient's attention. Of course there is no absolute proof of this condition but from the voice having been weak before the aphonia and from the fact that the paralysis of the left cord continued six weeks after his voice was regained and seemed to him normal, the conclusion seems justifiable.

Case 2.—O. H. J., male, æt. 38. This patient came to me from Wisconsin, in the early part of February, with the following history: About three weeks previously he had an attack of influenza, and after five days suddenly found himself unable to speak. The next morning he was able to talk aloud for about an hour when his voice again left him. The following day he had the same experience, but after that he had been unable to speak louder than a whisper up to the time of consulting me. He was not nervous, he slept well, his appetite and digestion were good, and he had the appearance of perfect health. The vocal cords were of normal appearance but did not move when I asked him to phonate. I applied static electricity externally over the larynx, directing him at the same time to pronounce the letter A, which he did aloud and distinctly. There was no return of the aphonia. He was given strychnia to be taken a few days in doses of one twentieth of a grain three times daily. Four days later he returned to his home perfectly well.

This case illustrates the rapidity with which some of these can be cured.

Case 3.—M. F., æt. 20. This patient came to me from Michigan, with the following history: Eleven weeks previously in an accident his head was thrown violently backward in a way that caused some injury to the larynx. He had found himself unable to speak after the accident. Dr. Parks, who saw the case sometime afterward,

said there had been a fracture of the cricoid cartilage. When the patient came to me he was apparently in perfect health but could not speak excepting in a whisper. He coughed aloud, but said there was no sound when he attempted to laugh.

Upon a laryngoscopic examination, I found the larynx and trachea normal. The cords were closely approximated during attempted phonation but no sound was emitted. There seemed no reason for loss of voice excepting lack of effort upon the patient's part. No treatment was instituted as the patient had merely been sent to me for examination.

Case 4.—Miss W. A., æt. 23. This patient came to me from one of the central cities of Illinois, with the following history: During the previous years she had lost her voice sixteen times but had each time soon recovered it. The present attack of aphonia she attributed to having been thrown from a buggy four weeks previously, since which time she had been unable to speak louder than a mere whisper, though she coughed and laughed aloud.

Upon directing her to speak while I made a laryngoscopic examination, I found she could easily sound aloud the letter A, but ordinarily the vocal cords upon attempted phonation left a space about two mm. in width between them. I applied static electricity to the larynx directing her to sound the letter A during the application. This she did two or three times but immediately resumed her whispering. About an hour later her voice returned and remained for about twenty-six hours when it was again lost. She suffered from insomnia, was despondent, and complained of being continually tired. She was given sulphonal which acted well in producing sleep, and strychnia, iron and quinia with other tonics for her general condition. From this time on she visited my office about every second day for seven weeks, and at nearly every treatment her voice was restored, but it would fail again after a few hours. I then began to increase the dose of strychnia, and in nine days I had raised it from one-twentieth of a grain three times a day to one-tenth of a grain four times a day. While taking this quantity, when her voice was restored it did not again fail. About two weeks later the strychnia had to be diminished to one-tenth of a grain three times a day because it caused slight twitching of the muscles of the eyes. She was now feeling more cheerful, had a fair appetite, slept very well, and did not complain of the constant weariness which had troubled her so long. Her voice remained permanent. Two weeks later the strychnia was reduced to one-fifteenth grain three times a day and she returned to her home apparently perfectly well. She has recently written me that she again lost her voice about three weeks later, that is, seven weeks

after it had last returned. I advised her to again increase the doses of strychnia.

This case illustrates the difficulties that will be met in obstinate cases, and shows clearly that in some of these there is really no paralysis, but simply an insufficient effort on the patient's part.

Case 5.—Miss D. M. D., æt. 29, came to me with the following history: Six years previously while suffering from an attack of pneumonia she had become hoarse and remained so for two days. The morning afterward she found herself unable to speak excepting in a whisper, and her voice had never since returned. Her grandparents and parents were long-lived, but a brother and sister were said to have had consumption. She had twice suffered from pneumonia.

I found her general health good, though she was not very strong. She complained of some pain in the right mammary region and of some shortness of breath on exertion, with an occasional attack of cough at night. The appetite was fair, and digestion normal. Pulse 100. There was no fever. She could talk only in a faint whisper. She complained of some pain in the larynx when swallowing, and of a sense of dryness or tightness with considerable pain after having had to talk for any length of time. The cords were of a light pink color and did not approximate closely, a chink of about three millimetres in width being left on attempted phonation. I ordered a tonic pill of quinia, iron and strychnia, and applied static electricity over the larynx. Subsequently the faradic current was applied to the cords from time to time. The patient continued to take the internal remedies, but only visited me at irregular intervals during the next eleven months, when I find it noted that she had much improved, and was frequently able to speak a few words in a loud voice. Six weeks later, she could talk in an undertone the greater part of the time, and three months afterward she was able to talk aloud all of the time, though not with a very intense voice. At this time the cords were properly approximated during phonation. I noticed in this case that the ventricular bands always closed before the true cords on phonation. Eighteen months after the beginning of treatment she was able to talk aloud.

In this case the aphonia had persisted for six years before the patient came under my care. She was treated on an average of two or three times a month for eleven months before any decided improvement could be observed, then she began to speak a few words at a time in an undertone. I did not see her again for three months, but under the persistent use of comparatively large doses of strychnia (as large as she could take without twitching of the muscles) and small doses of quinia and iron, her voice steadily improved until at the end of eighteen months from the beginning of the treatment, she was pronounced cured.

A NEW OPERATION FOR PROLAPSUS OF THE ANTERIOR VAGINAL WALL.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-first Annual Meeting of the American Medical Association, at Nashville, Tenn., May, 1890.

BY ANDREW F. CURRIER, M.D.,

OF NEW YORK.

With the exception of vesico-vaginal fistula the lesions of the anterior vaginal wall are more or less ignored by the majority of the profession, or if not ignored are considered of less importance than they actually are. Especially is this the case with prolapsus, which may exist alone or in connection with descent of the bladder, uterus, posterior wall or rectum. Prolapse of the vagina does not necessarily signify prolapse of the bladder and rectum, and errors of diagnosis in this direction are frequently made through examinations which are not sufficiently careful. In either case the vaginal lesion demands operative treatment, but the symptoms are usually much more urgent if rectum or bladder has descended than when this is not the case. The vaginal wall is one of the means by which the weight of the bladder is sustained and such portions of the intestines as may be superimposed, and the medium through which the resultant of the forces exerted by the contraction of the abdominal muscles passes. The structures of the pelvic floor may be so disorganized as to be of little value as a means of support, but if the integrity of the anterior wall is preserved the latter may act as an efficient barrier and support for a long time.

The causes which lead to prolapsus of the anterior wall are not limited to the parturient process either directly or indirectly. The lesion may occur in the young and nulliparous in connection with general relaxation of muscular fibre; it may be the consequence of straining at stool in connection with persistent constipation, or it may occur in the aged in connection with general atrophy of the muscular tissue. A prolonged second stage of labor with subsequent imperfect involution may be its efficient cause, or it may occur in women who have had a number of pregnancies in rapid succession, and in whom the conditions of life and health have been such as to preclude complete involution.

It has two types: In one there is atrophy of muscular fibre and diminution in the thickness of the entire structure, there is also protrusion of the bladder and disturbance of its functions, especially in those cases in which there is coexisting cough or constipation. In the other type the mucous membrane of the vagina is thickened and its connective tissue hypertrophied, but there is no protrusion of the bladder, though there may be extensive prolapsus of the vaginal wall.

The object of an operation on this structure is to restore it so that it may accomplish its normal functions. This implies restoration of normal dimen-

sions longitudinally as well as laterally. Operations which have heretofore been devised have tended almost exclusively to contract the wall only in its lateral or transverse dimensions, the old operation of Dieffenbach being the type of such procedures. The vagina is thus made narrower but also somewhat longer, and the great strain which is placed upon a long line of union is not infrequently sufficient to rupture it and restore the former diseased condition in an exaggerated form. The method of Emmet of burying a quantity of undened tissue beneath his line of union seems irrational, for while this tissue may atrophy it may also suffer decomposition. It also imposes a great strain upon a narrow line of union, a strain which it will not bear in all cases, as experience shows.

The operation which is proposed as a substitute for previous methods aims to contract the vaginal wall to a sufficient extent both in length and breadth, and to distribute the tension over two lines of union at right angles to each other. It was demonstrated before the Obstetric Section of the New York Academy of Medicine in January of this year, and on several occasions before the class at the New York Post-Graduate School and Hospital. I have thus far performed it three times, in each case before the class of the last named institution. The conditions differed in every case and in all of them the results have been entirely satisfactory. The operations were performed in December, 1889, January and March, 1890. All the patients have been seen within a few days, and there is as yet no indication in either case that the benefit derived from the operation will not be permanent.

In performing the operation, an elliptical strip of mucous membrane of sufficiently large area is first removed from the anterior wall as in the Dieffenbach and other operations, and then another elliptical strip at right angles to the first, the major axes of the two ellipses intersecting at their middle point. This tissue is best removed with forceps and scalpel, and in favorable cases, the outline of the ellipses having been made by suitable incisions, the tissue can be unrolled or torn off upon a tissue forceps with broad grip. I have had one made for this purpose. In cases in which there is protrusion of the bladder the dissection must be made with great care to avoid wounding that viscus. The hæmorrhage is sometimes considerable, for the bladder wall is very vascular, but it is mostly venous and stops as soon as the wound is closed. Catgut is used in closing the wound, No. 2 or No. 3 being used according to the thickness of the mucous membrane. Continuous sutures are used and they are buried in the connective tissue if that is thick enough to warrant it, otherwise the suture is carried directly from edge to edge of the wound, the needle entering and issuing from the mucous membrane about $\frac{1}{8}$ of an inch from the edge. A

fine slightly curved needle is used about $1\frac{1}{4}$ inch in length. That portion of the wound nearest the cervix is first closed, the suturing being continued as far as the junction of the longitudinal with the transverse ellipse. Then, with another needle and suture, the portion of the wound nearest the meatus urinarius is closed, the suturing being continued as far as the junction of that portion of the longitudinal with the transverse ellipse. Then, in precisely the same manner as before, the transverse segments of the wound are closed, and the two sutures are finally tied together at the middle point of the entire wound. The result is that the vagina is narrowed and also shortened to the desired extent and the tension is evenly distributed over two lines of union which cut each other at right angles in the middle point. The wound may be painted with iodoform colloid or left without any dressing whatsoever. The patient must lie quietly upon her back for a week, and by that time the wound will almost certainly be firmly healed, for the conditions of drainage are all that could be desired, and the vascularity of the parts is ample. If the patient suffers from severe cough the operation should be deferred, for the strain upon the wound induced by coughing may be sufficient to tear out the sutures. In one of my cases the coughing was intense and harassing, but the result has been all that could be desired. I would be unwilling, however, to take such a risk again.

FUNCTIONAL NERVOUS DISEASES OF REFLEX ORIGIN.

Read in the Section of Ophthalmology at the Forty-first Annual Meeting of the American Medical Association, held in Nashville, Tenn., May 21, 1890.

BY ALBERT RUFUS BAKER, M.D.,

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If one-half that is claimed by Dr. George T. Stevens be true,—viz.: That nearly all headaches, neuralgias, almost all cases of chorea, and 50 per cent. of all cases of epilepsy are due to incoördination of muscles of the eyeball, the subject is one of momentous importance to every general practitioner of medicine, as well as to the surgeon and specialist. That there is a grain of truth in his observations, I have no doubt, but it cannot be separated from the chaff by positive declarations pro and con, without first being investigated by impartial, unprejudiced careful scientific observers.

The position Dr. Stevens occupies in New York is an anomalous one; if I am correctly informed he went there a comparative stranger, a few years since, from Albany where he enjoyed a fair, local special practice. Although he had been a regular contributor to the medical periodicals his reputation was not such as to gain him the

immediate confidence of a large number of specialists or general practitioners in New York City. His contributions were mostly on the subject of muscular asthenopia, and eye strain, but were not given much serious consideration until after the publication of his book on "Functional Nervous Diseases," which was awarded the first prize by the Belgian society. Instead of candidly investigating the merits of the subject, many of the leading ophthalmologists and neurologists passed sentence upon his work, declaring his statistics to be manufactured and his conclusions preposterous; but notwithstanding this verdict, Stevens continued to read papers before the medical societies, and to contribute articles to the medical journals until a few physicians became at least partial converts to his views.

About two years ago, the New York Neurological Society appointed a committee to investigate the claims made by Stevens, as to the possibility of curing chorea and epilepsy by correcting ocular muscular defects. It was decided by the committee which consisted of five neurologists and general practitioners and two ophthalmologists, that the cases of epilepsy and chorea should be first examined by the committee, and the history and present condition recorded. The case should then be submitted to Dr. Stevens for treatment, and examined by the committee again before reporting the results to the society. Only fourteen suitable cases were submitted for treatment: five of chorea and nine of epilepsy. Of these cases six were reported as improved, seven unimproved, and one unknown. Notwithstanding the committee express the opinion that the "method of Dr. Stevens does not afford a sufficient degree of relief to warrant its adoption or recommendation to the members of the Neurological Society as a means of cure," the results are certainly as good if not better than those obtained by other methods of treatment.

The November number of the *Journal of Nervous and Mental Diseases*, is devoted entirely to the discussion of the subject. The position of Dr. Stevens is somewhat similar to that occupied by Dr. Horace Green in 1857, before the New York Academy of Medicine, before which he demonstrated the possibility of intra-laryngeal treatment; which resulted in the split of that society, the resulting wounds of which have only recently been healed; and no doubt well remembered by many of the older members of this society.

The subject of peripheral nerve irritation is an old one. It is now conceded that many headaches are due to nervous disturbances as the result of errors of refraction. Facial neuralgia from diseased teeth is of common occurrence. We may also mention the bowel troubles so common in children as the result of dentition. Ear cough is another illustration of the frequent oc-

currence of functional nervous disturbance from peripheral nervous irritation, and was given much attention by the older writers one of whom, wrote a large book on this subject, in which he demonstrated to his own satisfaction at least, that vomiting, vertigo, cough, paralysis, insanity and nearly all kinds of laryngeal disease was due to the irritation caused by plugs of wax in the ear.

More recently it has been claimed that asthma and many other respiratory neuroses are due to peripheral irritation as the result of nasal obstruction. We may also mention the intestinal irritation of worms, and that due to fissure and fistula of the rectum.

"Genital irritation was urged at one time by a distinguished surgeon as a cause of paralysis of the extremities, and for a time circumcision was regarded as a necessary preliminary procedure indispensable in the treatment of many nervous diseases, among which infantile paralysis and spastic paraplegia may be named. Later the influence of congenital stricture of the urethra was brought forward as a cause of many neuroses and of temporary states of nervous excitability; and not long after, the claims of the genital organs of women rose in the estimation of the profession as fertile sources of nervous disease."¹ Other familiar examples of nervous phenomena of reflex origin are the vomiting of pregnancy, pain in the knee, from morbus coxarius, pain in the penis, from irritation of stone, etc.

These are among the more common functional diseases of reflex origin, and every practitioner of medicine could make additions of unusual cases from his own experience. The essayist reported a case some years since, in the *Medical Record* of a young girl whose hair on the top of the head did not grow over an inch in length, but which grew naturally after correcting an error of refraction with spectacles. Recently he met a case of sudden deafness as the result of acute inflammation of the Eustachian tube in which there was complete aphonia, and the boy only began to speak slowly after the hearing was fully restored. A few years since he was consulted by a woman with a plug of wax in the ear, and a bald spot on the side of the head as large as the palm of the hand; after the removal of the wax the hair grew again. A case of epilepsy has been reported as the result of polypus in the ear and cured by its removal.

These illustrations of unique cases of functional nervous diseases of reflex origin might be continued indefinitely; but these observations will serve to call your attention to the broad field which the subject covers.

Other phenomena of frequent occurrence are giddiness, vertigo, and vomiting; all of which have an intimate relation with eye strain, and are due to two causes: first, to the efforts necessary

¹ Starr, Medical Record.

to properly adjust the muscles of the eyeball in binocular vision; and second, to the muscular efforts made in accommodating the eye for objects at varying distances. Both these factors must be taken into consideration in every discussion of this subject. And here I believe is the weak point in nearly all the observations of Dr. Stevens and his followers. They have attributed all the functional nervous disturbances to the insufficiency or spasm of the muscles which move the eyeballs, and have almost entirely ignored the accommodation in the production of these functional neuroses. I believe that nearly all the troubles we have with the muscles of the eyeball are due to, and are the direct outgrowth of the errors of refraction. This is generally recognized in cases of hypermetropia as a cause of strabismus.

In most cases of muscular asthenopia we have the same excessive nervous stimuli sent to one pair of muscles that we do in strabismus, and those patients who have not sacrificed binocular vision, consequently suffer from pain and other nervous disturbances, due to the conflicting efforts at accommodation on the one hand; and those of convergence on the other. It has been my experience not infrequently in cases of errors of refraction that after correcting the ametropia, to find, that while I had relieved the pain due to the efforts at accommodation, I had disturbed the equilibrium that had become established between the efforts of accommodation and those necessary for perfect binocular vision, and thus set up a train of symptoms almost, if not quite as annoying as those from which the patient suffered before. If the limits of this paper permitted I would be pleased to report a number of cases illustrating this point.

It is in the knowledge of this subject gained only by a large practice that the oculist who has had a wide experience, excels the beginner, and this is the reason why so often spectacles that are theoretically correct are rejected by the patient.

The dizziness which results from looking at a rapidly moving train of cars, while swinging, or from looking over a precipice, is due to the same excessive muscular efforts made necessary for the proper coördination of the eyeballs, and those of accommodation. The frequent instruction of stewards on board steamships to the passengers to keep their eyes shut while making their toilets and until they reach the deck, to prevent seasickness, is a practical illustration of this principle. The most essential factor in the cause of sea-sickness is due to the muscular efforts made necessary on shipboard in viewing objects at varying distances.

Persons suffering from astigmatism are peculiarly liable to giddiness and vertigo, undoubtedly due to these unusual muscular efforts. An astigmatic patient of mine, could not sew on striped goods; and was frequently caused to vomit while

ironing such goods. Another said the mere mention of a barber's pole always caused a squamish sensation at the pit of his stomach. Another if walking behind a person with a striped dress on the street was always obliged to close his eyes or look in another direction to prevent falling. These cases were all cured by correcting the error of refraction. A statement made by an eminent oculist that if we, like the giant Cyclops, who assisted Vulcan in his workshop, had but one eye in the centre of his forehead, would not suffer from muscular asthenopia, is not strictly true, because we not infrequently meet persons who have but one eye, (or what is more frequent who use but one) who suffer from reflex nervous disease due to eye strain.

It is necessary, in order to secure binocular vision, to have the eyes so adjusted, that rays of light coming from an object are focused upon corresponding parts of the retina. For perfect vision it is necessary that they are focused upon the fovea centralis of each eye. The delicate muscular arrangement, which is necessary for changing the focus of one eye for near and distant objects is a complex one; but to keep both eyes fixed on objects at varying distances is much more so, and it is not difficult to understand how muscular disturbances might follow as the result of errors of refraction; or even in cases of emetropia in which unusual or prolonged work is demanded of the eyes.

Dr. Noyes says, "the acquisition of binocular vision belongs to the first months of life. Young infants roll their eyes about in the most inconsequential fashion, and when their visual vagaries give place to binocular fixation an important step has been gained in ocular and cerebral development. In some subjects this function is never acquired, in others it may be lost after having presumably been acquired. All cases of permanent strabismus are instances of suppressed, or of lost, or of undeveloped binocular vision."

Muscular insufficiencies is one of the most difficult parts to master of the entire subject of ophthalmology. The diagnosis is always difficult, and usually requires repeated examinations. It is not sufficient to correct manifest defects as revealed by the von Graefe test, but we must seek after masked insufficiencies of the ocular muscles as we do for masked errors of refraction by the use of atropia. Unfortunately we have no such reliable means of solving the former problem as we have the latter, by paralyzing the accommodation.

The most satisfactory discussion of this subject with which I am familiar is a paper by Dr. Noyes, entitled, "On the Tests for Muscular Asthenopia, and on the Insufficiency of the External Recti Muscles," which was presented to the Eighth International Medical Congress at Copenhagen, six years ago. It is exhaustive, scientific, based

upon a large number of cases, readily comprehended, and no list of outrageous new names to be remembered, such as heterophoria, orthophoria, esophoria, exophoria, hyperesophoria, etc., as are found in Dr. Stevens' work. On the whole, this contribution of Dr. Noyes is so much in advance of Dr. Stevens' book, both in time and every other commendable feature, that I have often wondered why Stevens is securing all the credit for work that was done so much better and earlier by Noyes.

It is necessary, in making these examinations, to find the amount of abduction and adduction both for distant and near points. In order to make these tests valuable it is necessary to have some physiological standard of adduction and abduction for comparison. A valuable contribution to this subject is given by Dr. H. S. Shell in the *American Journal of Medical Sciences*, October, 1878. He gives one table of twenty emetropes whose adductive power at the distance of 20 feet varied from 20° to 40° , and their abductive power varied from 4° to 16° ; the average was for adduction, 29° ; for abduction, $8\frac{1}{4}^{\circ}$; the average ratio between them was as 100 to 28. It is difficult to determine what is the ordinary condition of the muscular apparatus for the individual, as what is the normal condition for one is abnormal for another; and for this reason repeated examinations are necessary, and they must be made with the most consummate care, or the most unfortunate mistakes will be made. Usually those whose adductive power is less than 8, and whose abductive power is over 28, may be assumed to have insufficiency of external recti muscles; and one whose adductive power is less than 28, and whose abductive power exceeds 9, may be assumed to have insufficiency of the internal recti.

This test of the muscular power I believe to be of more value than the equilibrium test of von Graefe. Some years since I instituted some tests as to the state of the muscles in persons who had normal vision. I found that only about one-half of those examined had perfect muscular equilibrium. Dr. Roosa, who has recently repeated these investigations, found that out of 103 subjects examined only seventeen were found to have muscular equilibrium. Rather a low percentage, I think. But of several hundred cases with *refractive error* in which I tested the muscular power, I found even a less number in which there was perfect muscular equilibrium.

It has been my practice for a number of years in all cases of muscular asthenopia in which the muscle at fault could not be readily determined, to resort to the use of atropia. This will reveal any latent error of refraction which may be the unsuspected cause of the asthenopia; but even though there be no error of refraction it puts the eye at rest, allays muscular irritability, and the investigation can be pursued with much greater

ease and the results will be much more uniform.

The use of prisms for the correction of muscular insufficiencies on the whole, I have not found as valuable as I was led to suppose they would be from *a priori* reasoning. Nevertheless they are of very great benefit in many cases. They seldom can be worn stronger than 2° or 3° for each eye, but even in cases where the muscular defect is greater than this amount the comfort to the patient is very considerable. During the first twenty-four hours more or less discomfort is suffered, the patient has some uncertainty in judging of distances, and experiences some difficulty in walking, especially in ascending and descending stairs; but after the eyes become accustomed to the new adjustment the relief is very marked. If the prisms afford any permanent benefit the question of tenotomy ought to be considered.

The result of operative interference, if judiciously performed, is always more satisfactory than the wearing of prisms, which at best is only a poor crutch to lean upon for a time, and permanent cures can only be attained in many cases by making tenotomies.

As to the relief of headaches my experience would lead me to believe that a large number that can not be cured by correction of the error of refraction alone, can be relieved by the use of systematic muscular exercise, by prism, by tenotomies, or by a combination of all these methods. The same may be said to a limited extent of some cases of neuralgia, neurasthenia, chorea and epilepsy. But it is to be remembered in all these cases there is a neurotic temperament, that predisposes these patients to some form of neurotic disease. The peculiar form the disease may assume is often due to accidental causes, and this is the reason that when you cure these patients of one affection you are almost sure to have another follow, possibly in a distant organ. And thus it is that the oculist is reaping an abundant harvest from the fields already gleaned by the gynecologist, who has sewed up all the lacerated cervixes, and repaired all the damaged perinee until the chastest maiden might envy the comely appearance of the genitalia of the most prolific matron. It may be true that these patients are relieved of side and back aches; it may be that their constipated bowels or irritable bladders perform their function better; yet these patients still suffer about the usual amount of pain and discomfort in the course of the year although it may be transferred to the head or eyes.

I am not prepared to state just what this neurotic habit is, but we are all familiar with its manifestations. With one it will be manifested by recurring attacks of sick headache; in another by a paroxysm of asthma or hay fever; in the female by painful menstruation or hysteria, and in others it may manifest itself as neuralgia, chorea or epilepsy. We specialists may lop off

a branch here and there, and we may be of real value to our patient in relieving him of some troublesome or painful symptom, but there is something more necessary—the patient needs treatment more than this or that annoying symptom. Let us then not ignore the general practitioner in his more responsible duty of correcting the general condition, which after all is the real cause of these nervous diseases of reflex origin.

DR. SCHWINITZ did not wish to discuss graduated tenotomies and their effect on so-called reflex neuroses. He wished to point out that the mere correction of a local irritation was by no means sufficient to obviate the nervous explosion supposed to be caused by the defect, because the lack of the control of the higher centres over the lower reflex mechanism, which is really at the bottom of the trouble, is not thus restored. The inference was plain that this must be treated by general measures.

He drew a comparison between the refraction of the eyes and equipoise of eye-muscles of choreic children and those of children not choreic, and showed that they were closely similar. He stated his belief that correction of the ocular difficulties was often followed by disappearance of the chorea, which, however, was liable to return, especially in the "chorea months," if the child was exposed to the same environment which was present at the original onset.

DR. LEARTUS CONNOR, of Detroit, Mich., said: In a careful study clinically of numerous cases during several years I have reached certain results: (1) Most cases with heterophoria accompanied by disturbances of the nervous system are relieved by a correction of the optical defects, plus a lowered state of the general constitution. By such a course most persons were entirely relieved, the eyes remaining in so perfect equilibrium as to warrant no further interference. (2) A very few cases were not so relieved and a tenotomy performed. Partial tenotomies were unsuccessful, and a complete tenotomy was finally performed. (3) Occasional cases are relieved by the use of correcting prisms; but generally they are simply temporary expedients. (4) The recent discussions of this subject have placed in our hands a means for meeting the needs of certain cases more satisfactory than we previously possessed.

DR. EDWARD JACKSON: The point that these conditions known as reflex neuroses are due to lack of control in the higher centres, is of sufficient importance to be emphasized. There are certain facts that emphasize it. In some cases, when no heterophoria is revealed by covering one eye, it still appears on using the diplopia test, indicating that the position of the eyes is thus shown to be not one of rest, but of a special action. The power of other muscles to adapt them-

selves to requirements made of them, if they receive proper innervation, would indicate, by analogy, such power on the part of the ocular muscles, and this is supported by experience in the performance of tenotomies for heterophoria.

DR. HOTZ wished to correct the statement that Stevens disregarded the effect of refractive errors on the nervous system, and only regarded muscular disturbances as a cause of functional nervous diseases. In his book and his journal articles Dr. Stevens has emphasized the importance of always first correcting errors of refraction. He gave tables showing the frequency of refractive errors alone producing headache, etc., which were relieved by correcting the ametropia. All oculists recognize the accommodation strain as a frequent cause of headache, and oculists have also always admitted that nervous symptoms can be produced by strain of the ocular muscles. The fact has never been denied, and the only question is to what extent and how frequently muscular strain is a cause of nervous disorders. It is a common occurrence that a man who is successful with a new mode of treatment is carried away by his enthusiasm, and so it may be that Dr. Stevens' claim may not be sustained by experience to its full extent. But whatever the verdict of the future may be, it will always give him credit for having widened an important field of investigation, for having directed our attention to the fact that difficulties in binocular fixation arise from other than the internal recti muscles more frequently than was ever thought of, and particularly that deviations of one visual line in the vertical plane occur and are a source of the most distressing asthenopic symptoms. The doctor here gave the history of a case of asthenopia which had received no benefit at all from the correction of a low degree of hyperop. astigm., though glasses had been used for four years. The correction of a slight degree of hyperphoria removed all asthenopic and nervous troubles, and the relief has been permanent since over two years, even though the patient has dispensed with her glasses. That many persons with heterophoria are not troubled with headache or other nervous symptoms, is no argument against the doctrine, for with the same logic you might deny the relation of hyperametropia to accommodative asthenopia because not every hypermetrope is troubled with it.

DR. MINNEY: I believe Dr. Stevens' claims are founded upon physiological principles, but his enthusiasm has carried him to the extreme. A case of mine was operated on for insufficiency by the doctor, and the patient thought she was cured. She cannot, however, use her eyes continuously. The operation has acted as a placebo, and with the care she has learned to take of her eyes she can use them longer; but I do not think it is due to the operation.

. BAKER, in response to Dr. Hotz, said that I not intend to convey the impression that tevens did not correct errors of refraction, he does most thoroughly; but he protested at his giving all the credit to the results of a imaginary operation, and ignoring the benefit derived from the use of spectacles.

USE OF SYMPATHETIC OPHTHALMIA TWO WEEKS AFTER ENUCLEATION OF THE INJURED EYE.

Read in the Section of Ophthalmology, at the Forty-first Annual Meeting of the American Medical Association, Nashville, Tenn., May, 1890

BY GEO. H. GOODE, M.D.,
OF CINCINNATI, O

The patient whose history I report was a boy 11 years of age. He was injured in a quarrel with another boy on the third day of last October, and was brought to my office immediately after the injury. He had been struck by a rock the size of a man's fist, and from the absence of any marks on the face must have received the full force of the blow in the eye. Examination showed a complete vertical rupture of the cornea and a slight extension of the wound into the sclerotic below. Exactly to what extent the contents of the globe had suffered it was impossible at the time to determine. The serious nature of the injury was explained to the friends, and the mere possibility of retaining the eyeball, though shrunk, was placed before them; while the probable necessity of its removal at any future time was impressed. The wound being free from anything which might retard its union, the course of treatment was an expectant one. The boy seemed to get along fairly well for a few days, there being very little inflammatory reaction. There was nothing further done for two weeks, but "waiting and seeing" what developments would take place. About that time the eye was quite painful to touch, and the prospect for a speedy subsidence of the inflammation was not very flattering. There was nothing in the condition of the uninjured eye to cause alarm, but nevertheless I advised the removal of the damaged eye, in order that the boy might be able to return to school, and especially that all future danger might be obviated. However, had I had more confidence in the friends giving the case the attention it needed I might have continued my efforts a little longer to save the injured eyeball.

The mother desiring a consultation, Dr. Robert Sattler was called, who advised the removal of the injured eye; which I did on the following day. There was nothing about the operation out of the ordinary, except that the corneal wound, which had not firmly closed, ruptured and rendered the enucleation a little more difficult. This being done, I felt that I could safely assure the

mother that the boy had escaped the danger of future trouble. I, too, felt responsibility lifted from me, and little thought that the case was to prove one of the rare exceptions to the rule. Treating this case as any other after such an operation, after a week had elapsed, as there was nothing further to be done but await the proper time for the wearing of an artificial eye, I dismissed him temporarily. I was therefore surprised to see the boy return to my office at the end of the second week, with what his mother called "a cold in the right eye." I did not agree with her in her diagnosis, but recognized the fact that he had a well-marked iritis. A mydriatic produced an irregular dilatation of the pupil. After a short continuance of the atropine the synechiæ were relaxed and the pupil dilated *ad maximum*. The posterior surface of the cornea was, too, partially studded with punctate deposits, so that the inflammation seemed to be of a sero-plastic nature. The ophthalmoscope revealed nothing. Vision was reduced to $\frac{2}{20}$. An examination of the stump of the enucleated eye showed nothing—there was no tenderness, nor was there any contraction. As there was no increased tension, atropine was continued, leeches were applied and hot water applications made. Under this course of treatment the acute inflammatory conditions subsided, and after some weeks the eye assumed externally a normal appearance with the exception of still a hazy appearance of the posterior surface of the cornea. This condition gradually improved and all external manifestations disappeared, so that the chances of a speedy recovery were hoped for. It was only a short time, however, that I was again called to see him. This was some time in February. After pursuing the same course of treatment as before, he again improved, and since the first of April has visited my office occasionally to be under observation.

At the present time his vision is only about $\frac{3}{20}$. Had I not examined the vision of this eye before there was any trouble and found it $\frac{2}{20}$, I might account for the defect as being due to congenital amblyopia. The ophthalmoscope shows no lesion sufficient to account for the diminution. I am, however, still in hopes that the vision will improve.

MEDICAL PROGRESS.

WEIGERT'S HOT AIR METHOD IN PHTHISIS.—A recent discussion led by NYKAMP, in which Rieth, Lazarus, Frankel and Rosenfeld took part (*Allg. Wiener Med. Zeitung*), seems to have effectually disposed of Weigert's method as a therapeutic procedure. It was claimed that, owing to the dryness and heat of the air, there was a marked increase in the congestion of the mucous membranes, the cough was aggravated, and this

tended to excite hæmorrhage; further, that the temperature of the air in the alveoli was not raised, owing to the free evaporation from the moist surfaces. This Nykamp claims to have experimentally shown by a thermometer placed deeply in the pharynx, that air inhaled at a temperature of 265° C., when it reached the pharynx had a temperature of but 55° C. It was found that a thermometer placed just beneath the vocal cords of a dog only registered 37.3° C., while the animal was inhaling air with a temperature of 190° C. From these facts the conclusion is reached that Weigert's method does not destroy the bacilli, as it cannot materially increase the temperature of the air entering the alveoli. Its only benefit, the respiratory gymnastics, may be secured by more convenient and safer methods.

RESORCIN IN DIPHTHERIA.—DR. ANDEER (*St. Petersburg Med. Wchnschr.*, May 13, 1890) affirms his earlier observations (1876–80) with the use of this drug. The article is decidedly polemical, and handles rather severely those who have criticised this treatment or the results claimed for it. Leblond and Baudier, of the Hôpital Saint Lazie of Paris, are quoted as strong supporters of this treatment, having used it with good success for the past eight years. They recommend the penciling of the affected parts with a solution:

R. Resorcin 3.0
Glycerini 30.0

each hour during the day and as often as once in two hours in the night time. The sick-room should contain a Lister's spray apparatus, constantly pulverizing a solution of:

R. Resorcin 50.0
Aq. destil. 1000.0

Leblond and Baudier find that glycerine is an excellent adjuvant, as it absorbs the water from the parts, lessens the swelling and decreases the size of the mucous glands of the part. When the membrane affects the nose, the injection of a 1 per cent. solution, or penciling with a 5 per cent. solution, is useful.

Andeer closes his article with the advice that in cases where topical applications cannot be made, as when the trachea is involved, the injections be made directly through the crico-thyroid membrane, preferably by *à jet reflex*. Nasal diphtheria should be treated by the use of soluble bougies containing resorcin, or solutions of the same drug injected, or saturating tampons.

SOLUTION OF SODIUM CHLORIDE IN ABDOMINAL SURGERY.—M. FRITSCH (*Semaine Médical*, June 18, 1890) claims that the danger in the use of ordinary antiseptics may be avoided by employing a 6 per cent. solution of common salt, with which the abdomen is freely doused. The fluid should be carefully prepared, thoroughly

sterilized, and used at a temperature of 38° C. The author says that the pains are lessened, shock decreased, and recovery hastened by this method.

LOCAL INFECTION WITH TUBERCLE BACILLUS.—DR. GUTZMANN (*Aerztlichen Praktiker—St. Petersburg Med. Wchnschr.*) describes an instance of local infection occurring to himself. In February he made a post mortem examination of a body dead of miliary tuberculosis, and, in removing the lungs, in some way injured the root of the finger nail. After the dissection he felt a pricking sensation in the tip of the finger, but could find no wound. This disappeared and nothing was noticed in the finger until the 20th of March, when it began to pain him, but nothing was thought of this until it began to be more severe, when a careful examination of the finger was made and a small abscess found at the root of the nail. This was opened and a little pus evacuated, which was spread out on a cover-glass and colored after Ehrlich's method. Upon examination three tubercle bacilli were found. The wound was thoroughly scratched out and disinfected. Lymph adenitis did not show itself, nor has there been any rise in temperature.

HÆMOPTYSIS A SYMPTOM OF INTERSTITIAL NEPHRITIS.—DR. DUCLOS (*Rev. gén. de Clin. et de Therap.*) says that hæmoptysis in adults, without cardio-pulmonary lesion, is an early symptom of interstitial nephritis. These patients are frequently affected with rheumatism, eczema, asthenia, and later they present signs of arterial sclerosis. Two interesting cases are described in which the sclerosis was at first confined to the vessels of the lung, where the condition gave rise to hæmoptysis. Later the process extended to the kidney, with an ultimately fatal result.

HYDRASTININ IN METRORRHAGIA.—E. FALK (*Arch. für Gynäkologie*, Bd. 37, Heft. 2) finds that hydrastrinin which is an oxydation product of hydrastrin, having the formula $C_{11}H_{13}NO_3$, is of greater use in the treatment of hæmorrhage than either hydrastrin or the fluid extract of hydrastris canadensis. He claims that the drug produces strong and lasting contraction of the arterioles without affecting unpleasantly the heart or spinal cord. He gives an account of 28 cases treated in Landau's clinic which show that the drug is of great use in hæmorrhages, due to congestive conditions in the pelvic organs (congestive dysmenorrhœa, hyperplastic endometritis). In fibroids it lessens the quantity of blood, but in cases of metritis, and the severer neuroses its action is uncertain. From experiments upon animals he comes to the conclusion: that owing to the contraction of the small arteries especially the abdominal, the uterus is emptied of blood and

congestions of the genital organs are lessened. Immediate stoppage of the flow in metrorrhagia is not to be looked for, but good results may be obtained by using it a few days before menstruation is expected.

EXALGIN.—PROF. S. RABOW (*Therap. Monatsschfte*, May, 1890,) gives a critical résumé of recent communications regarding exalgine. This substance related as it is to antifebrine has the power of controlling pain in a remarkable manner; by many writers it is regarded as equal to morphine, but without the unpleasant consequences of the latter. The dose is from two to seven grains, it may be given in solution, with dilute alcohol, or mixed with water—in cold water it is but sparingly soluble. Excellent results have been obtained in the treatment of facial neuralgia, lightning pains of tabes, and in migraine. None of the unpleasant symptoms noted in the use of antifebrine has been observed with this drug. When given in from ten to fifteen grain doses it may cause vertigo, but cyanosis has never been noticed. Rabow warns against the too prolonged use of the drug, as like all the aniline derivatives, it lowers the vitality of the red blood corpuscles.

**FARADIC ELECTRICITY IN CATARRHAL IC-
TERUS.**—KRAUS (*Arch. f. Kinderheilkde.*) reports seventeen cases of catarrhal icterus cured by five or six applications of faradic electricity. One electrode is placed at the border of the liver in the neighborhood of the gall-bladder and the other in the same horizontal plane to the right of the vertebræ. The application produces contraction of the abdominal muscles, and it is also supposed to increase peristalsis in the gall-bladder which empties the organ and lessens its size.

PUERPERAL INFECTION.—ALFRED HEGAR (*v. Volkmann's Samml. Klin. Vortr.*, 1889), has added to the literature an interesting statistical study of the results of confinements in Baden for a number of years. A table is given showing the total number of labors, number of deaths within the first twenty-one days, proportion of deaths caused by puerperal fever, and other percentages. From this rich material, over 50,000 labors annually, he comes to the conclusion that the number of deaths in the first twenty-one days after labor has remained about the same for the past forty years.

Hegar rejects the theory of auto-infection, and refers every case to some external source, from this he argues that all manipulations of the genital tract are dangerous and may prove a source of infection.

He finds that the number of deaths during confinement since 1883 is greatly decreased in those under the care of physicians, so that there must

be an absolute increase in the mortality of those cases cared for by midwives. This increase he refers to the practice of injecting a 3 per cent solution of carbolic acid into the vagina, before labor. This practice recommended to midwives in the last few years he regards as most pernicious, as it not only directly carries the infectious material into the genital tract but encourages a meddling interference.

ELECTRO-THERAPEUTICS IN ATROPHY OF THE OPTIC NERVE.—M. WEISS (*Centralbl. f. Therap.*) claims to have secured excellent results in the treatment of this intractable affection with the use of the constant galvanic current. He employs a specially constructed electrode composed of a number of fine nickel or brass wires, covered with modelling clay; by this means evenness of application to the entire surface of the closed lids is obtained. Currents of 2 milliampères are used, passing to an ordinary electrode placed at the nape of the neck. The writer claims that currents of this strength may be used for fifteen to thirty minutes without causing dizziness or distress. The length of the applications is especially insisted upon, and they should be repeated daily. The efficacy of this treatment is attested by the description of an interesting case of optic atrophy in tabes successfully treated by this method.

TREATMENT OF GOITRE.—MOSETIG-MOORHOF (*Wiener Med. Presse*, 1890), recommends the parenchymatous injection of iodoform in all soft goitres (*Struma follicularis mollis*). This variety of struma has been treated in this way, by the author, for ten years, and he has yet to see any unpleasant results. The injections are made under the strictest antiseptic precautions. Fifteen minims to 1 drachm of the following solution is used:

R. Iodoform.	3j.
Æther.	5v.
Olive oil	3j.

The solution should be freshly prepared, transparent and of a light yellow color. From five to ten injections are usually needed, depending somewhat on the size of the struma. The injections should not be made oftener than once in from three to eight days. The reaction is usually very slight, and absorption continues some time after the last injection.

NUMBER OF BLOOD CORPUSCLES IN HEALTH.—W. REMECKE, of the Bacteriological Institute in Halle (*Fortsch. d. Med.*, vii, 1889) has recently conducted a series of observations upon his own blood. The examinations were made thrice daily, for twelve days. A marked variation was found in the number of white corpuscles at different periods of the day, though the average remained about the same. The result of the total of the seventy-two observations gave an average

of 1 white corpuscle to 720 red, though variations as great as 1 to 500, or 1 to 1,000, may be normal and often occur in healthy individuals.

FURUNCLES IN DIABETES INSIPIDUS.—J. LOWINSKY (*Centralblatt für Klin. Med.*) describes an interesting case of polyuria during the course of which multiple furuncles broke out on loins, back and thigh. The urine amounted to 7,000 cc. daily as an average of seven observations, with a specific gravity of 1004. The question of the relation of the skin symptoms to the polyuria is entered into at some length, and a brief review of the literature is given. The author concludes that there is a causal connection between diabetes insipidus and trophic changes in the skin.

BACTERIOLOGICAL STUDIES.—E. METSCHNIKOFF has recently been making some additional studies upon the anthrax bacillus (*ze Mémoire Annales de l'institut Pasteur, Centralbl. für Physiol.*). One of his conclusions is that the leucocytes of the blood are capable of destroying the living bacteria, and not as claimed by some, only the dead ones. This he claims to have experimentally demonstrated by the following method: Doves were inoculated with anthrax, and from the inoculated point some of the exudate containing leucocytes was obtained and mixed with bouillon, this substance destroys the leucocyte, but allows the bacillus to grow and multiply, as was directly observed under the microscope. That the bacillus still retained its virulence was proven by the fact that when three (?) leucocytes containing bacilli were removed on a fine pointed glass rod and placed in a drop of bouillon upon the stage of a microscope, the resulting culture proved deadly to animals.

The bearing of these observations upon the general doctrine of phagocytosis, is apparent.

ARISTOL IN THE TREATMENT OF OZÆNA.—DR. LOWENSTEIN (*Internationale Klin. Rundschau*) warmly recommends this drug in the treatment of severe forms of rhinitis. He describes four cases in which fetor was a prominent symptom, that were cured in a few days. The remedy was used in the form of a powder by insufflation, first removing all inspissated secretion, and then blowing the powder evenly over the clean mucous membrane.

IODINE IN THE TREATMENT OF RETINAL DETACHMENTS.—In the Berlin Medical Society, on May 7th, SCHÖELER made a further report on the use of intra-ocular injections of iodine in the treatment of retinal detachment. A total of twenty-eight cases had been so treated, and details were given as to the five successful and the remaining more or less successful cases—three of the latter being really nearly complete successes. A number of the cases had been desperate, and

hardly suitable, from their long duration, the presence of cataract, etc. Serious hæmorrhage ruined the result in three eyes; minor extravasations lessened it in two cases; and in five a brilliant success proved but transient. Based upon a series of studies upon animals, and already attended with some success, the method seems worthy of fuller study, especially by laboratory experiments; and while an expectant treatment by rest, etc., should always be tried first, there is great likelihood that the method can be used in otherwise hopeless cases with moderate safety and considerable hope of cure.—*Medical News.*

TREATMENT OF PHTHISIS BY INHALATION OF BALSAM OF PERU.—DR. SZOHNER (*Pester Med.-Chir. Presse; Internat. Klin. Rundschau*) describes the results in treating sixteen cases of phthisis by inhalations of balsam of Peru after the method of Landerer and Opitz. The results were excellent in these cases, some of which were quite far advanced. One patient suffering from diabetes was seemingly cured, at least sugar disappeared from the urine and the quantity of urine fell to normal, while another case of locomotor ataxia was greatly benefited.

KOLA-NUT FOR SEA-SICKNESS.—DR. C. W. HAMILTON, of the British Navy, writes to the *British Medical Journal* of May 10, 1890, that he has found the seed of the kola (*Sterculia acuminata*) a most successful remedy in sea-sickness. From $\frac{1}{2}$ to 1 drachm of the seed was slowly chewed, and in about half an hour the distressing symptoms of the malady gradually disappeared. The writer had never found any drug to act as well as this, and believes that further trials will prove it to be an effectual remedy for sea-sickness.—*Medical Record.*

CULTIVATION OF SARCINA FOUND IN URINE.—HARTGE (*St. Petersburger Med. Wochenschr.*) details the efforts made to cultivate the sarcina, obtained from urine. All the commoner methods were employed and none of them succeeded, as it was impossible to obtain the sarcina, free from rapidly developing bacilli, that would destroy the culture medium. At last he obtained rapidly growing cultures, upon agar-agar, containing $\frac{1}{2}$ per cent. of neutral urine. In this medium the sarcina would develop rapidly even when surrounded by colonies of other forms. From plate cultures he was able to inoculate pure fluid cultures.

He briefly discusses the difference between lung and stomach sarcina, and those found in the urine. The former are easily cultivated at ordinary temperatures, while the latter require a temperature of that of the body. The former grow readily on decaying media, while the latter is easily destroyed, or at least will not grow in the presence of the commoner forms of decomposition.

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THE SOCIAL STATUS OF MEDICAL MEN.

In some communities, the honor in which the medical man of the place is held by all still persists as a remnant of the age that is past. This anomaly may be observed elsewhere as a result of the social precedence which the antecedents of the incumbent carry. Many, though not all medical men, are active in every good work in the community in which they live. They are leaders in literary and educational, as well as in political and benevolent undertakings, and the influence which they exert in these directions is accredited to the profession to which they belong. The fact that they are looked to as teachers of science in its broadest sense, and as examples of culture, leads them to depart from the too narrow limits of medical reading, for excursions into literature, philosophy and science. These examples of the cultured physician are most often, if not most typically, observed in the country. The exigencies of general practice, far from specialists, encourages a study of, and practice in, the whole field of our science and art.

In the city, strange as it may seem, there is a strong tendency among medical men to become dwarfed in their general culture by an excessive devotion either to an inexhaustible practice, or to the study of a limited field. Association of place calls forth no interest in local affairs. The development of the man and the scholar is neglected for the development of the doctor or the specialist. Thought, reading, conversation and dreams alike are confined to the tread-mill of daily occupation. Therefore, with

few notable exceptions, our profession in the cities is unknown in the social world. Unfortunately many medical men are influenced by financial considerations to parade in those artificial and secret organizations which are ordinarily known as benevolent societies. These offer the same possibilities of a rapid acquaintance that the small community affords.

As long as the standards of this commercial age prevail, success will be measured by the financial rewards which it secures; and science, and medicine, as the noblest and most benevolent of the applied sciences, will be poor in honor and profit. The inventor of a labor-saving device has a property in his invention, and a prospective, adequate reward; but our civilization has not yet begun to appreciate the value of life and health. What reward, for example, awaits the physician or scientist who shall restrict the ravages of disease? Every student of mycological pathology believes that preventive inoculation will be successfully practiced against all those diseases in which one attack renders the individual immune to subsequent invasion. Why are there not as many attempts to institute such protective methods as there are to contrive labor-saving machines, or to produce literary works? There is no lack of opportunity, but there is no hope of reward. Let us suppose that a young physician to-morrow brings out a method of inoculation against scarlet fever which will relegate that mournful disease to the seclusion small-pox has sought; what, in the estimation of the most sanguine, might he reasonably expect? What does history teach? There is certainly no provision for financial reward similar to the reward which would follow the invention of a more destructive weapon of warfare. Nor could honor or social distinction be expected. The optimist would hardly promise him anything but calumny, abuse and insinuations of chicanery or delusion while he lived, and a systematic defamation of his memory when he was dead and buried.¹

Although the scientific position of medicine is impregnable, and its lack of honor and social position is due almost entirely to its inadequate rewards, the conditions which prevail in the commercial and manufacturing pursuits are not so flattering that they tempt the adoption of so-call-

¹"History and Pathology of Vaccination," Edgar M. Crookshank, Philadelphia: 1889. 2 vols., 8vo, pp. xii and 266 and 610.

ed business principles and methods.² Indeed the social and economic discussions of the day point to the probability that business has advanced as far as possible in the direction which it is pursuing, and that relief is to be expected in the abandonment of unproductive competition and commercial warfare; in fact, in a return to the principles which prevail in medicine to-day.

The restitution of its estate and of its social position to scientific medicine will be secured by a systematic effort to instruct the people, and especially the youth, in the principles of true science and the position which medicine occupies as the most practical of the applied sciences; by offering the least resistance to those false sciences, which are parading as cure-alls, confident that their true anatomy will soon be discovered under their disguises; by coöperating more and more closely with one another and with those in pursuit of the allied sciences; and by devoting a larger portion of our time and energy to the common good.

FILARIA SANGUINIS HOMINIS AT CHARLESTON.

DR. DE SAUSSURE, of Charleston, S. C., contributes to the *Medical News* the result of his study of twenty-two cases of filaria sanguinis hominis, occurring in that city 1886. Efforts had been made prior to 1886 to discover the filaria in certain cases of chyluria, suspected to be due to the parasite, but without success. DR. JOHN GUITÉRAS obtained the first ocular proof in a mulatto woman, aged about forty years, who was chyluric. Of the 22 cases, 16 were married and parents; in over half of these, filaria were searched for among their children, husbands, wives, also among the friends and bedfellows of the unmarried; yet in only one instance was there found a second case in the same household. The white persons were seven in number, males five, females two; colored, nine males, six females. Three whites were socially "in high life," all the others, black and white, belonged to the lower and middle classes. The drinking water is mainly from the pump and artesian well, and exceptionally from the cistern; for a short period just after rain-storms, the poor may use the barrel-water for a time, but this is soon exhausted, and the people go back to the pump and well.

The artesian water is from wells sunk 1,800 feet deep and over, but before it is ready for service is stored in an open reservoir; like the barrel-water it contains many specimens of microscopic animal life.

The diagnosis of the disease can alone be made with the microscope. Chyluria, chylocele, lymph-legs and glandular enlargements were frequently found without the filaria being detected. Again, filaria are found without the usual lymphatic disturbances. Again, chyluria was intermittent in every case. An abundance of filaria was not an essential index to the intensity of the chyluria.

Learning from a veterinarian of his city that filaria were frequent among the dogs of Charleston, Dr. Saussure made some observations on that animal, going to show that the embryo filaria in man and dog are very similar, if not identical. This difference occurred, however, the parasite of the dog can be detected at any time of the day or night; in man it was never found—with two exceptions—in the day. The fleas of filaricous dogs were studied for some time with negative results, but finally two filaria were found in the body of a flea taken from a diseased dog. If this observation shall be confirmed it will throw considerable light on the question of the convection of the disease. DR. BANCROFT, who was the first to identify the filaria hominis in Australia, in 1876, and to point out its embryonic development in the mosquito, has advanced the opinion that all filaria, whose embryos circulate in the blood, require in order to their dispersion among other animals, the intervention of some blood-sucking animal, such as the mosquito, flea, louse or sand-fly, all of which should be studied in the localities favored by the filaria. Dr. Bancroft believes that one of the ways by which the parasite has proved injurious has been by invading the heart and there causing thrombosis; it may also be the cause of embolism.

THE NEW HYPNOTIC, SOMNAL.

The ideal hypnotic has not yet been discovered. Chloral hydrate is a great favorite, especially among our asylum superintendents, but it has its manifest drawbacks in private practice. Chloral-urethan and chloralamide are competitors for therapeutic favor, along with somnal, all of them depending largely on chloral for their efficiency. This suggests that we may before long get some

² "Doctors' Inventions," editorial, *The Times and Register*, May 31, 1890.

composition on that base of chloral which will be more prompt and manageable than any we now have. Sulphonal has lost some of its hold by reason of its irregularity, by putting the patient to sleep twelve hours or more after the time when the somnolence was sought, or prolonging it beyond the point desired; its potency in a certain range of cases should not be denied, but taken as a whole the drug has been a disappointment to many. The latest hypnotic, somnal, to receive attention, is preferred by DR. KNY, the eminent specialist of Strasburg, chiefly on the ground that it has very little influence over the heart's action. The short time, a half-hour or less in many cases, wherein sleep is induced makes somnal much preferable to sulphonal, which seldom acts under one or two hours, or it may begin to act when the practitioner is about to administer a second dose. The inventor of somnal, HERR RADLAUER, of Berlin, has been able to prove that it is a distinct chemical compound, having the formula $C_7H_{12}Cl_3O_3N$. It is obtained from chloral, alcohol and urethan, and comes as a clear fluid. It differs from chloral-urethan in that it contains two atoms more of carbon and four atoms of hydrogen. Radlauer advises that the initial dose shall be 2 grams, or $\frac{1}{2}$ drachm, mixed either with syrup of raspberry or juice of licorice. The somnolence lasts seven, eight and even as long as ten hours. Doses of twice the size above mentioned have been given by PROF. LANGENBUCH, of the Lazarus Hospital at Berlin, without noticing any toxic effects, while the hypnotic result in many cases has been excellent. The quality of sleep is said not to be profound, so that the surroundings should be made as little disturbing as possible.

PROTECTIVE INOCULATION.

One of the strongest arguments against the efficacy of the preventive inoculation of rabies, has been that an attack of the disease did not confer immunity or prevent the subsequent occurrence of the disorder. PASTEUR seems to have demonstrated that a certain immunity may be obtained in dogs, but after a time they again become liable to rabic infection. The general principle of protective inoculation has been strengthened by the recent observations of A. DE PAOLIS (*Riforma Medica*, No. 200), who has found that in repeated

inoculations of rabbits with erysipelas cocci, they rapidly lose their susceptibility to the disease, until finally no reaction is obtained. He has further found that the cocci themselves soon lose their virulence when successively cultivated upon gelatine or in bouillon. These cultivated forms may be introduced into the abdominal cavity without causing any symptoms of erysipelas, or indeed, any disturbance of the general health of the animal. What is of more importance is that rabbits inoculated with this "minimized" virus are not susceptible to the most active cultures of the erysipelas cocci.

The value of observations of this kind cannot be overestimated; not only from their scientific interest but from their possible practical importance. We hope soon to chronicle the confirmation of these experiments, and to see their extension to other infectious diseases.

EDITORIAL NOTES.

PROTECTION OF THE INSANE AGAINST FIRE. The *Medical News* says that in view of the frightful loss of life from the burning of asylums at Montreal, Canada, and Utica, N.Y., the Committee of Charities of the Massachusetts Assembly have framed a bill requiring iron fire-escapes to be constructed on the outside of all asylums for the insane throughout the State. Suitable apparatus for the distribution of water hose within the buildings will be required, and the trustees are directed to cause a regular monthly inspection to be made of these life-saving appliances.

SIXTY YEARS A PHYSICIAN.—The Chicago Medical Society at a meeting held at the Grand Pacific on the 7th inst., celebrated the sixtieth anniversary of the entrance into the medical profession of Dr. William G. Dyas, who was born in Dublin in 1807, and after passing twenty-nine years of professional life in Ireland, came to America thirty-one years ago. Appropriate resolutions on the event were read by Dr. Rachel Hickey and presented to Dr. Dyas as a memorial. The presentation speech was made by Dr. Hoag, and was received on behalf of the doctor by Dr. G. C. Paoli. Speeches were also made by Drs. William E. Clarke, C. W. Earle, E. Ingals, C. D. Wescott, and L. H. Montgomery. The Committee on Necrology paid tributes of respect to, and read sketches of the lives of recently de-

ceased members, among whom were Drs. W. H. Byford, Samuel Shaefer, T. R. Gaudy, and J. P. Ross. The meeting closed by the exhibition by Dr. C. A. Earle, of Seibert's Sterilizing Milk Apparatus, and a paper by Dr. T. Melville Hardie.

FRENCH PHYSICIANS AND THE BERLIN CONGRESS.—So far from boycotting the Berlin Medical Congress, France seems anxious to be officially represented thereat to the fullest possible extent. In addition to the nine army surgeons who will represent the Minister of War, and the three professors who are to represent the Minister of Public Instruction, it is now announced that Professor Proust, Dr. Netter, and Dr. Valude will be sent as delegates by the Minister of the Interior, in his capacity as head of the sanitary service. Drs. Brassac and Hyades will represent the Minister of Marine.

CHOLERA has again broken out in the city of Mossul, on the Tigris. The Russian government has sent Dr. Jelisiejew to learn the extent and progress of cholera in Persia. It is stated to be on the increase in and about Valencia, and to have broken out in Portugal. Some alarm is felt in London and Paris. In the latter city the government has put to work some 22,000 men at filtering the water supply.

OSCAR LIEBRICH in April celebrated the 25th anniversary of his admission to the practice of medicine. He was at first a chemist, and later studied medicine at Föbingen and Berlin, where in 1865 he was made Doctor of Medicine.

ANTIPYRIN.—The extent to which antipyrin has been used may be inferred from the fact that the chemical factory in Höchst on the Main, which has a monopoly of the manufacture, reports a profit of over 5,000,000 marks.

THE NEW COMMITTEE OF PHARMACOPŒIAL REVISION.—The newly constituted Committee of Revision and Publication of the United States Pharmacopœia has twenty-five members, thirteen of whom bear the title M.D., and twelve that of Ph.D. or its equivalent. Dr. H. C. Wood, the President of the Convention, was by special vote added to the Committee, making the number of physicians fourteen. Of the thirteen, three have served formerly, Drs. T. F. Wood, F. A. Castle, and Otto A. Wall. The newly appointed physicians are Drs. Roberts Bartholow, N. S. Davis,

Jr., R. T. Edes, J. M. Flint, C. O. Courtman, R. G. Eccles, W. G. Gregory, J. Godfrey, W. M. Mew, and H. H. Rusby. Of these the Army, Navy and Marine-Hospital Service have each one representative. Eleven members, in all, of the last Committee of Revision have been retained in the present one. The Chairman of the old Committee, Mr. Charles Rice, was voted the sum of \$1,000 as a personal testimonial in recognition of his immense labors during the last decennium; this gift he retained long enough to express his grateful sentiments, and then passed it over to the Treasurer of the new Committee. Mr. Rice was re-elected to the chairmanship of the Committee.

DR. SCHWENINGER'S INTRODUCTION TO BISMARCK.—A German journal not long since recited the following as a truthful account of what transpired between Prince Bismarck and his favorite physician, about the time of their first meeting. It was at Carlsbad. He was feeling very unwell and sent for Dr. Schweningen, who began to put all sorts of inquiries to him, some of which did not suit him. At last the Prince lost his temper, exclaiming, "What are you driving at, doctor?" Nothing disconcerted the doctor replied, "I am at your orders, Prince; but if you wish to be treated without being questioned you had better send for the veterinary, he is accustomed to practice medicine that way." The Prince saw the point and gruffly said, "Hold on, I guess you are the man I want," and became the model patient from that day forward.

REMOVAL OF A LOWER LID FOR CARCINOMA.—Prof. Eversbush (*Munch. Med. Woch.*), reports the removal of a lower lid for Carcinoma, the defect in the skin being supplied by a flap from the forehead, the mucous membranes of the œsophagus of a rabbit furnishing the conjunctiva for the new lid.

DR. F. H. BROWN, of Boston, has invented an apparatus to enable deaf persons to hear public speakers.

ON June 20th the foundation stone of the main buildings of the Emperor and Empress Frederick Children's Hospital, at Berlin was laid in the presence of the Empress Frederick. Professor Virchow, in the name of the Committee, thanked that exalted lady for her unremitting labors on behalf of the new institution, towards the cost of which she had collected \$125,000.

TOPICS OF THE WEEK.

THE RACES OF CENTRAL AFRICA.

The Masai tribes who inhabit the rich volcanic country east of the Victoria Nyanza are among the most interesting people in Central Africa. They are not negroes: they have good cranial development, straight, well-shaped noses, eyes with a slight Mongolian slant upwards, prominent cheek bones, jaws rarely prognathous, chocolate-colored skins, and extremely well-proportioned limbs. Both men and women elongate the lobes of the ear by ear-stretchers, till they nearly reach to the shoulders, and their fists can be put through the orifice in the distended part. The chief achievements of the young Masai men or warriors seem to be to make eloquent speeches and to commit murder. Internecine wars have depopulated their country, and their ferocious attacks on caravans have made Masai land both the terror and the *terra incognita* of travellers. Till they marry the young men feed on milk and flesh food, and smoking and chewing tobacco and drinking fermented liquors are strictly forbidden. Before setting out on a fighting excursion the warriors retire to the mountains and gorge themselves with beef with the idea that they thereby store up strength. After marriage they add vegetables to their food, and they then chew tobacco and indulge in an occasional carouse. The married men and women live in kraals apart, and the unmarried girls and warriors live together in other villages by themselves, in a state of promiscuous free love. The women are completely clothed in dressed hides, and are as immoral as the men are arrogant and ferocious. The Masai will not allow burial of a corpse, as they think it will poison the soil, and it is therefore cast to the wild beasts without ceremony.

They have no religion and no belief in a future, but are extremely suspicious, and have complete belief in witchcraft. Thompson, the traveller, was the first European to traverse the country of this terrible Masai, did so by posing as a great white wizard by the aid of an electrical machine, an artificial set of teeth removed at will, and Eno's fruit salt, which, on being made to fizz at the firing of a gun, would, it was alleged, work wonders ten days after he had left. To spit on a person is to confer the greatest mark of respect. Where the Masai have, as the result of warfare, been obliged to settle and mix with other tribes, and have been cut off from the evil traditions of their race, their superior mental development has resulted in producing hybrid tribes distinguished for their energy in trade and their good government. This experience is encouraging at the present moment when we are making arrangements to take these wild tribes under our protection.

The Wa-Karirondo, who live north of the savage Masai, are cultivators of the soil and a vegetarian people. They have a less fine physique and less ferocity of disposition than the Masai. The men go absolutely nude; the women "wear necklace and a smile," and sometimes a cotton tail; but though unclothed they are as distinguished for their modesty and virtue as the

draped Masai women are for their audacity and vice. They are fond of dancing, in which violent muscular movements of the arms and shoulders play the principal part.

The Waganda may be said to be the French of Central Africa. They are people with ideas, and they lead the fashions. A race which prides itself on descent from remote white progenitors, the Waganda stand out, by reason of their elaborate system of autocratic government, their laws and customs which control all the affairs of life, even the amount of bare leg permissible at court; their higher civilization, which is shown in their dress, houses and sanitary arrangements—as distinct and separate from the naked savages which surround Uganda, "the Pearl of Central Africa." The Emperor Mtesa, with his barbaric court on the shores of the Victoria Nyanza, his arrogance and cruelty, his intelligence and eager desire to learn, his vast armies and his huge harem, has been described by Speke and Stanley with such minuteness and brilliancy that his name and character will never be forgotten. The Waganda are extremely intelligent, and the missionaries who followed in Stanley's steps and established a station at Uganda tell wonderful stories of individual converts who quickly learnt to read the Bible in their native tongue, and to write capital letters, and who even suffered cruel martyrdoms for their faith; but all who have had anything to do with these people agree that, as a whole, they are crafty, lying, murderous thieves. Both men and women are draped in bark-cloth, and immodesty is a crime; the dwellings are clean, and each householder is obliged to construct a privy away from the house; the banana and plantains are the staple articles of food, the savory cooking of which is practiced. The Waganda are very skillful with their fingers, and in the making of shields, spears, and canoes they excel all other African tribes; they are extremely fond of music, and have a number of musical instruments; indeed, so fond are all the African races of music, that, in Sir Samuel Baker's opinion, a man who plays the cornet, or an organ grinder, could pass unharmed from one end of Africa to the other; and that a missionary to be successful ought to be able to dance a jig and play the bagpipes. Women in Uganda are mere baggage and all wives have their price.

The Wanyamwezi, who have become the trusted porters or *pagazis* of all exploring parties or trade caravans into the interior, are a people of great endurance and physical strength, and are docile, courageous, and obedient if well led. A curious custom prevails among the Wateita of coating the body with lampblack and castor oil, which acts as a protection against excessive heats by day and chills at night.

The cannibals of the Congo, whom Stanley was the first to discover and visit, and who pursued him and his followers all down the great river with yells and cries of: "Meat! Meat! Ah, we shall have meat to-day!" show, in spite of their horrible tastes, a somewhat high standard of achievement in the building of their houses and canoes, the smelting of metals, and ornamenting of weapons, etc.

The Pigmyes of the forests of Central Africa are men-

tioned by Herodotus, and have been spoken of, mostly by hearsay, by nearly all African travellers; but Du Chaillu was the first to give an account of them and their settlements and to obtain measurements of their bodies and heads. Those described by him were the Obongos, of Ashanpo-land. They are of extremely low type, with exceedingly low and narrow foreheads, in height about four feet six inches, and with the body covered with tufts of hair.

In some parts of the great central forest the dwarfs seem to be hunted and eaten by the more powerful tribes, and Stanley describes how the villages of the Congo are ornamented with the skulls of what the natives called "Sokos," who, they said, were hairy dwarfs who lived in the forest, and whom they hunted, killed, and ate, because they stole their bananas. Stanley obtained two Soko skulls, and brought them home and submitted them to Professor Huxley, who declared that they were human skulls, with all the characteristic peculiarities of the negro type, including a well-marked, but not unusual, degree of prognathism. The cephalic index was 75.

In Western Equatorial Africa the tribes are not cannibal south of the equator. The tribes are split into clans, each clan being presided over by a chief or father under whose protection they live. The powerful king and the despotic form of government of Eastern Africa are unknown. The law of the strongest does not prevail, and they do not raid for plunder. Polygamy and slavery prevail here as elsewhere in Africa. They understand the arts of weaving and smelting metals, but how they learnt them they could give no account. As these races have not been subject to European or Arab influence, it is probable that the people, as well as their primitive arts are of great antiquity. Du Chaillu holds that "of all the uncivilized races of men the negro has been found to be the most tractable and the most docile, and he possesses excellent qualities that compensate, in a great measure, for his bad ones. That he will disappear in time from the land he (Du Chaillu) has very little doubt; and that he will follow in the course of time the inferior races who preceded him."

That the population of Africa is decreasing all allow, and Du Chaillu mentions as the causes: "The slave trade, polygamy, the barrenness of the women, death among children, plague and witchcraft," and adds "the latter takes away more lives than any slave trade ever did." The system of night nurseries, described by Sir Samuel Baker, must also have great effect in keeping down the population. Into sheds, built without the means of ventilation, the babies are put at dusk, there they lie all night on the clay floor in a reeking atmosphere. They are fetched in the chilly morning by their mothers, when they try to warm their little naked bodies at the hut fire.

The ravages made by small-pox are terrible. The most repulsive form of the disease prevails, and unchecked by vaccination, it often sweep away whole villages and clans. Some writers speak of plague, and describe the bubos in the axilla, which recall the plague of the Middle Ages. Elephantiasis, leprosy, and dysentery prevail, and Europeans are almost invariably attacked

by malarial fevers, which yield, however, to quinine. Drunkenness is not, as is frequently stated, introduced by Europeans, but is one of the favorite vices of the primitive negro.—*British Medical Journal*.

SUMMER-DRINKS IN INDIA.

The *Medical Record* of Calcutta contains some interesting remarks upon the beneficial effects to be derived from non-alcoholic drinks in the height of summer. After remarking that the very bane of European existence in India lies in the habits of eating and drinking, physiological arguments are adduced to show that highly carbonized materials are very deleterious in hot climates. The custom of the Moguls, who for luxury have had no equal in Indian history, is referred to as offering a fitting example. Their drinks consisted of milk, sweetened waters, or sherbets, prepared from subacid fruits, such as lemons, tamarinds, pomegranates, etc., flavored with rose or Keora essences, date juice, numerous vegetable tisanes, and some infusions of glutinous seeds flavored with sugar and essential oils. These were often cooled with ice collected in pits, where it was stored during the winter months. The Oriental races, it is asserted, suffer from few of the diseases which are common to the copious meat-eating, wine-drinking Europeans. For a hot day, a light vegetable diet is recommended, with a spare quantity of meat food and an abundance of cooling, non-alcoholic drinks. Ice is regarded as a necessity, and coffee, tea, and cocoa are to take the place of whisky-and-soda. The use of aerated waters prepared from pure and wholesome ingredients, and the admixture in them of the numerous fruit flavorings which abound in the tropics, are regarded with favor, as likely to offer a lucrative source of income to persons engaged in such trade, while also giving the European community a very acceptable form of summer drinks. This suggestion has already to a certain extent been put into practice both in this country and in America, but there is still some uneasiness as to possible evil consequences resulting from the consumption of large quantities of iced drinks when the atmospheric temperature is high. As regards light diet and extreme moderation in the use of alcohol, however, the recommendations are admirable, and might well be followed here.—*Lancet*.

PROPRIETARY MEDICAL PREPARATIONS.

At a recent meeting of the Society for the Study of Inebriety, the President, Dr. Norman Kerr, read an abstract of a report presented to the American Society on "Nostrums." A number of reputed "cures" for alcoholic and opiate inebriety had been analyzed. All were found to have alcohol present in substantial proportions. Dr. H. W. Williams, Mr. F. J. Gray, Mr. Jabez Hogg, Mr. Wm. Gourlay, Mr. L'Oste, and Dr. Paramore took part in the discussion, which resulted in the adoption of a resolution to the effect that, as much inebriety was caused by the use of alcohol and opium under the insidious form of patent medicines and so-called "cures," the meeting was of opinion that no proprietary medical preparation should be sold unless its exact composition were printed on the cover.—*British Medical Journal*.

PRACTICAL NOTES.

COSMETICS FOR THE PHYSICIAN.

The secrets of the toilet, the arts by which lovely woman hides incipient corrugations, effaces blemishes, and softens and beautifies her cutaneous apparatus and its appendages generally, are rarely investigated by the physician. He contents himself with removing some particularly obtrusive mark, pulling out superfluous hairs, or trying, with spirits and Spanish flies, to fasten in the too deciduous hair. Dr. H. Paschkis, of Vienna, however, has attempted to inaugurate a new era in this line, and has written a book, "Kosmetik für Aertze," which is intended to enable the physician to add to the æsthetic enjoyment, as well as physical welfare of humanity. Paschkis' book is said by a reviewer in the *Deutsche Medizinische Zeitung* to be a thoroughly scientific one. Its formulæ are based upon dermatological knowledge and pharmaceutical experience. As illustrations we are given four formulæ for that popular domestic article, "cold cream." One of them is as follows:

- R. Lanolin 10.0.
 Boracis 1.0.
 Aqua rosmarin 100.0.
 M. Sig. Lanolin-milk.

A formula for seborrhœa is the following:

- R. Kali carbonat. 10.0.
 Aqua destillat. 100.0.
 Olei æth. cinnamon. gtt. 2.0.
 Olei æth. rosmarin. gt. 1.0.
 ℞.

For warts our scientific book of beauty prescribes:

- R. Acid salicylicum 5.0.
 Collodii 20.0.
 ℞.

For sweating feet, 5 to 10 per cent. solutions of chromic acid are recommended.

For dandruff and baldness there are, of course, numerous prescriptions, but, we regret to say, no specific is announced. For a simple wash, as preventive of dandruff, we find:

- R. Kali carbonat. 2.0.
 Aquæ 100.0.

The formula for Hebra's dandruff water is also given, viz.:

- R. Spts. æther. 100.0.
 Tinct. benzoin 15.0.
 ℞.

Mouth-washes and tooth-powders are given, the author warning his readers especially against the use of salicylic acid for these purposes.

We have not space to describe the merits of Dr. Paschkis' work in further detail. But it is evident that, equipped therewith, the physician can enter on even terms the contest against the balms of Récamier, the secret washes of Lola Montez, and the roborant lotions of the Sutherland and other sisters.—*Med. Record.*

DIGITALIS WITH STROPHANTHUS IN CARDIAC DROPSY.

From the Paris letter of the *Medical Press and Circular*, May 7, we copy the following combination, which has been found "decidedly useful" in the treatment of dropsy of cardiac origin:

- Digitalis leaves 30 grs.
 Water 6 fld. ozs.
 Infuse and to it add:
 Citrate of caffeine 30 grs.
 Tinct. strophanthus 10 drops.
 Acetate potash 2 drachms.
 Syrup of orange 1 fl. oz.
 Mix. Dose, 1 tablespoonful during twenty-four hours.

PRESCRIPTION FOR CHAPPED HANDS.

The *Times and Register* offers the following as a combination that will be found serviceable in a large proportion of cases of chapped hands:

- Menthol 12 grams.
 Salol. 30 "
 Olive oil 30 minims.
 Lanolin. 1.5 oz.
 Mix. To be applied twice daily.

ATROPINE IN ENURESIS.

In the *Archives* Dr. W. Perry Watson strongly advocates the use of atropine in this condition, and gives short notes of thirty cases treated in this way with quite astonishing results. The formula employed was:

- R. Atropiæ sulph. gr. j.
 Aquæ destillatæ. ʒj.
 ℞.

Of this mixture 1 drop was given for each year of the age of the child at 4 and 7 P.M. In some cases the dose was doubled, if the disease was not cured by the end of the second week. In one or two of these cases some physiological symptoms were produced.

DIURETIN, A NEW DIURETIC.

The diuretic action of caffeine being open to the objection that it may be accompanied by sleeplessness and restlessness, it has occurred to Dr. Gram, of Copenhagen, to employ a sodio-salicylic compound of theobromine, to which he has given the name of "diuretin." Notwithstanding the strong resemblances between theobromine and caffeine, diuretin is alleged to produce strong diuretic action without in any way affecting the central nervous system, and to give satisfactory diuresis in cases of renal and cardiac dropsy in which digitalis and strophanthus have been inoperative. It is described as occurring as a white powder, containing 50 per cent. of theobromine, which dissolves in less than half its weight of water with the aid of heat, and remains in solution after the liquid has cooled. Six grams have been given daily in drachm doses.

SOCIETY PROCEEDINGS.

Medical Society of the District of Columbia.

Stated Meeting, October 16, 1889.

DR. CHARLES E. HAGNER, PRESIDENT, IN THE CHAIR.

DR. J. TABER JOHNSON presented the following cases with histories of the cases: 1. *Abscess of the Fallopian Tube.* 2. *Cysts of both Ovaries.*

DR. P. S. ROY read a paper on

HEART FAILURE.

There seems to have been an effort made in the last two years by medical writers to introduce the term "heart failure" in the medical nomenclature with the hope, I think, of supplanting the rather vague terms now in use—syncope and heart paralysis. Up to this time so far from removing any cloud they have rather added to the confusion, but I believe a step has been taken in the right direction. The term syncope goes far back in medical literature and I find in 1847 Marsh using "heart paralysis" in cases of sudden stoppage of heart force. Heart failure can have its origin in organic changes, particularly fibroid and fatty change in the muscles, but what is oftener the case, the heart is found without any structural changes and it is with these cases I propose to deal. Looking at these cases we find two causes: Poor nutrition both in quantity and quality, or direct inhibitory action of the vagus upon the heart ganglia. Through the vagus may come an inhibitory nerve impulse which, if sufficiently strong, may stop the heart in diastole, causing death; the intrinsic ganglia of the heart being for a time powerless to act. Nothing is more beautiful to the physiologist than a study of the heart. In the study of heart failure no one has done more than McWilliams, of Aberdeen. With great clearness McWilliams traces the relations between nerve impulse and the heart's action; he shows the beautiful relationship between the intrinsic and extrinsic heart nerves. But McWilliams, I think, has given the subject more attention from a physiological than clinical standpoint, for he thinks that in a large proportion if not all cases the result must be death. He tries to prove this by experiments on dogs. To the physician who wishes to save life, (for that is the practical side of every medical subject) those cases of heart failure coming from improper and poor blood supply, thus affecting the muscular and nerve forces, are for the most interesting, for we have means of treating them and I think in most cases successfully. Where shall we look for such cases? what are the symptoms? and what treatment is necessary are the questions presenting themselves. After severe acute disease or after chronic diseases that alter the blood, look for such cases. In pneumonitis enteritis, dysentery, typhoid fever

and rheumatic and gouty cases, death often comes from heart failure. The symptoms of heart failure are not always the same. Nor are they in any disease, but in most cases will be found pale or livid face, weak quick pulse, with hard respiration showing imperfect systolic action. To these symptoms may be added general nervousness. Yeo makes a most wise remark in his recent "Physiology," speaking of the special heart ganglia he says: "These nerve cells only require their nutrition kept up by a continued blood supply, in order to develop the energy necessary for their functions." The heart in heart failure, says McWilliams, has irregular or fibrillar systolic action, it has not the power to send the blood through the arteries. He also adds, one of the most common causes as improper blood supply and poor blood. Are not the conditions, therefore, plain, dilate the arteries thereby relieving the heart and giving its arterioles an increased amount of blood for its own nutrition. While these are the indications for urgent symptoms the blood must be looked to and its condition improved. Before giving several cases of my own I will mention two recorded by Bowie of Scotland. In his cases there was an acute congestion of the lungs, the patient had mitral disease but it had not gone far enough to produce any general symptoms. Bowie describes in his cases the symptoms I have given for heart failure. It was his treatment that was especially interesting to me; he says getting no result from digitalis he began the use of nux vomica, another excitator motor and used it in small doses rapidly repeated; in the course of a few hours his patients were much better and went on to recovery.

Now, it is my belief the good results gotten from the nux vomica were from the toxic and not the physiological effects. Nux vomica as a toxic agent acts as a motor depressant, thereby dilating the arterioles which met the indications. Motor stimulants are intended in an entirely different class of cases, we give digitalis and other motor stimulants, in heart dilation. They produce increased systolic power and prolong diastole, by this means the weak muscles are enabled to do more work just as one powerful blow of a sledge hammer carries a spike further than many weak blows of a child, though the same amount of energy may have been expended. In the class of heart failure due to inhibitory action of the vagus we find the heart stopping in diastole; here, just as in the other class of cases there is a want of blood, the indications are arterial dilation; for in this way the arterioles are dilated, which is a powerful stimulus to the ganglia, thus bringing on the needed systolic action. I have had in my practice in the last two months two cases of heart failure coming from improper blood supply both in quality and quantity. The first case was that

of a lady sixty years of age who was just commencing to convalesce from an attack of dysentery. In her case my attention was called to her general nervousness, and I gave her tinct. belladonna and bro. potassi to meet these symptoms. The next day I found my patient still nervous with livid face and weak pulse—indeed she was worse. I stopped the belladonna and bromide, and during the day gave her some whiskey. In the evening of the second day I was sent for to see my patient, I found her nearly unconscious and all the other symptoms I have mentioned increased, with these, the respiration had been hurried. I immediately ordered one of the most prompt motor depressants, nitroglycerine, and gave the one-fiftieth of a grain every hour. After the second dose my patient was much better and the nitroglycerine was given four times daily. At the time I gave the nitroglycerine I used a hot mustard foot bath. Nourishment was given often and in small quantities. This case has progressed to recovery. I believe digitalis would have injured my patient. My second case was a patient with typhoid fever, male about 40 years of age. The treatment was the same as in the first case, the patient got well. I have had other cases and to my sorrow some have died in spite of all treatment. This is but the outline of a class of cases that come in every man's practice requiring prompt treatment or death will result. I am convinced the term heart failure should be used in medical literature, and the time is not far distant when it will be as definite a term in medical nomenclature as typhoid fever. I have avoided making any mention of organic heart trouble, of course they may complicate any case to some extent, but in all cases the indication is more blood to the heart. I will now make my definition of heart failure, and its correctness will depend upon the correctness of what I have stated in this article. Heart failure is a more or less sudden loss of heart force due to either improper blood supply in quantity and quality or direct inhibitory nerve action upon the cardiac ganglia. Either class of cases can exist without organic changes in the muscles of the heart.

DR. HOEHLING gave the details of a case of carbolic acid poisoning from rectal enemata of carbolized water. The patient came near dying from heart failure but was stimulated by hypodermatic injections of sulphuric ether.

DR. D. O. LEACH gave the history of a child two and a half years old that came near dying from heart failure. He found it in collapse and administered whiskey freely. He met Dr. Roy the following day and told him of his case and he suggested nitroglycerine. The child had been taking the $\frac{1}{100}$ of a grain doses for a week and was getting well. Dr. Leach believed the recovery was due to the nitroglycerine.

DR. BUSEY: The subject of heart failure is

very interesting and very comprehensive and should not be passed over lightly. We should define heart failure as it is consecutive to many conditions. It should be distinguished from shock, and should not be confounded with excessive inhibition. He doubted the diagnosis in Dr. Hoehling's case as the carbolic acid poisoned the center thereby impairing the heart's action. We might as well say that opium poisoning caused heart failure. Heart failure is due either to changes in the heart muscle or to defective and deficient blood-supply. It may, however, occur in a well heart from some exhausting disease, as cholera morbus or cholera infantum. Excessive loss of blood may also cause it. Heart failure may occur in a well heart as a consecutive phenomenon. It is apt to occur in pneumonia, typhoid fever, diphtheria and other long-continued exhausting diseases. In such cases it is the effect of the fever, toxic influence, fever or overwork. In continued high fevers structural changes occur in the heart muscle as shown by the necroscopy. In diphtheria it is not so much the result of the high fever as of the change in the heart caused by myocarditis, softening and granulo fatty degeneration. In typhoid fever it is the result of changes in the heart structure. It is the ordinary result of structural disease of the heart. When compensation ceases the heart gradually loses its power. In the study of this subject we should study the relation of heart failure to disease as in diphtheria, typhoid fever and pneumonia. It is not necessarily due to structural change in the heart as it may be caused by overwork as in pneumonia. In paralysis following diphtheria the heart muscle may be invaded. While heart failure is the proper term in many cases it is not always used intelligently. The pathological condition should always be considered. We should draw a distinction between heart failure, paralysis and shock. Heart failure means serious structural changes in the heart's muscle or qualitative or quantitative changes in the blood. It frequently is the result of great, excessive and long-continued exhaustion. The method of treatment is not always the same as it must depend upon the cause. Improved nutrition is the only source of permanent cure; but by prompt application of the proper remedies we may avert impending danger. In certain rare instances nitroglycerine is advisable, as when the heart is over-worked by resistance at the periphery. Digitalis increases heart power as well the resistance at the periphery. If given even as a diuretic it may produce suppression of urine. Strophanthus has the power of increasing heart action without increasing resistance at the periphery and therefore preferable to digitalis.

The results of nitroglycerine are immediate and no other except ether acts so quickly. He had resorted to hypodermatic injections of ether

and had prolonged life for hours. He gave the details of a case which he had seen with Dr. Prentiss. The man had been sick several weeks and as they entered the house were told that he was nearly dead. They found him unconscious and almost pulseless. They gave him several hypodermatic syringefuls of ether. Shortly after he sat up in bed insisting there was nothing the matter and that he would be out in a day or two. Injections were continued for several hours until the ether lost its power. They informed their patient that he could only live a short time, but he said he was not ill. At this time his intellect was clear, but he died in less than an hour. He had seen individuals apparently dead resuscitated, sit up and then die in a few hours. Ether, however, lacks permanency but will bridge over cases in which we cannot expect a cure. Cure must be through recovery of the heart muscle which is best attained by general treatment. Alcohol is a food as well as a cardiac stimulant and may sustain life for days.

DR. KING thought it was unwise in Dr. Busey to permit his patient to sit up, as the horizontal position in all such cases is desirable so as to keep as much blood as possible in the brain. Ether is one of the best immediate stimulants.

Some months ago, at the suggestion of Dr. Harrison, he gave strophanthus to a man suffering from heart failure following recovery from alcoholism and opium poisoning without beneficial effect. Every one that dies has his heart stop, so that it is difficult to say that it is heart failure as defined to-night. We should anticipate those cases liable to die of heart failure as in diphtheria, pneumonia and typhoid fever. Dr. Watson aptly calls such cases asthenia. In many cases the heart fails because there is not bulk of blood. Every fever patient should have cool water *ad libitum* so as to keep up the fluidity of the blood. It is easily absorbed by those who cannot assimilate milk. Water is the only substance that can be absorbed without previous digestion. Undoubtedly many fever patients are killed for the want of water. By giving fluids and water we maintain the bulk of the blood.

DR. PARSONS asked Dr. Roy if his patients complained of the head symptoms usual in nitroglycerine.

DR. ROY replied that he usually stops the nitroglycerine as soon as its physiological effect was manifest.

DR. HOEHLING stated that the crisis in an illness of the Emperor of Brazil was bridged by hyperdomatic injections of caffeine.

DR. FRANZONI was called to the chair.

DR. HAGNER: Very often the term heart failure is used where it is not applicable. Dr. Watson was right when he advised to provide against this accident by recognizing those symptoms which cause it. He believed that patients were

often killed by trying to reduce high temperatures regardless of the condition of the heart. In scarlet fever, rheumatism and some other diseases a high temperature is normal to their course. As long as the fever is in safe limits let it alone, but when it goes beyond then antipyretic remedies should be given. It seems to be the fashion in febrile diseases to lower the temperature by some of the powerful antipyretics without regard to the condition of the heart. He then gave the details of a case, aged 3 years, that had taken forty grains of the sodium salicylate instead of four grains of the ammonium carbonate for pneumonia; its temperature fell in a few hours from 105° to 97° and he found it in collapse. Free stimulatives and hot baths caused prompt reaction. We should be careful in diseases where heart failure is coming on or liable to do so, not to use powerful remedies to reduce temperature and get the conditions favorable to collapse. He agreed with Dr. Busey as to the treatment of heart failure, but disagreed with Dr. Roy. Digitalis acts as a *vis a tergo*, while nitroglycerine as a *vis a fronte* dilates the peripheral vessels and removes the resistance. In pneumonia, with heart failure, he would advise atropia to stimulate the respiratory center, digitalis to increase heart power, nitroglycerine to reduce peripheral resistance and strychnia as a cerebro-spinal stimulant and for its general tonic effect.¹ Dr. Busey would also suggest spartein as a valuable cardiac stimulant. It is true as Dr. King stated that too little water may often induce heart failure, but more discretion in its use would seem advisable than was implied from Dr. K's remark. Dr. King was right in saying that we should anticipate heart failure, and the President was right in recommending such means as might prevent it. Dr. Hagner had spoken of a normal temperature for fevers and had cited scarlet fever. This was new to him and he would not accept it as true. Scarlet fever has all phases of temperature from a safe low to an unsafe high degree. All febrile diseases vary in temperature from a low to a very high degree. Dr. Hagner insisted that no means should be taken to reduce the temperature of a febrile disease unless it passed beyond its normal course. An intermittent fever frequently has a temperature of 105° , and is not considered dangerous. So that it is not always the height that is alarming but the continued high temperature and its effect upon the powers of resistance. We may meet with an elevation of 104° to 105° without any cerebral manifestations, while again a height of only 102° or 103° may cause the most violent cerebral symptoms. The individual power to resist high temperatures is as variable as disease. It is unwise to adopt a routine practice not to interfere unless

¹ This was really all the indications that could be met by physiological therapeutics.

the temperature should rise above a certain point. In typhoid fever we do not depend on the height as much as the difference between the morning and evening temperature and the duration of the fastigium in the use of antipyretics. In intermittent fevers there is a period of absence of fever; but in continued fevers there are only remissions and they are not always sufficient to permit recuperation. Many other circumstances also guide us in the method of treatment. Heart failure during or after continued fevers is more frequent than before the employment of the newly discovered antipyretics. Drugs that act as quickly and powerfully as these antipyretics are dangerous; and death is frequently due to their indiscreet employment. They should be used in hyperpyrexia only to reduce dangerously high temperatures. He had seen collapse produced in an adult from two and a half grains of antipyrin and the good judgment and prompt action of the nurse only saved the patient's life. He resorts to such treatment only where other means failed. The cold water coil was safer and more effective. He had regulated the temperature for weeks by it.

In a case of typhoid fever with dangerous cerebral manifestations he had employed the ice water coil constantly applied to the man's head for weeks. Recently in a lady suffering from typhlitis followed by general peritonitis the ice coil was continuously applied to the abdomen for ten days.

DR. MAGRUDER said the point advanced by Dr. King to keep the patient in the recumbent posture was a good one. In some patients who were, apparently, doing well the slightest exertion, as moving them or making a physical examination, might overtax the weak heart and cause its failure. He would emphasize the importance of absolute rest and recumbency in those conditions accompanied by feeble heart action. In diphtheria the erect posture is too frequently assumed for purposes of examination. He advised the administration of the spiritus etheris nitrosis in $\frac{1}{2}$ oz. doses every half-hour or hour in threatened heart failure, and said that he had gotten as good results as with nitroglycerine. He would indorse the advice of Dr. Hagner to give strychnia in conjunction with nitroglycerine. Stimulating food and alcohol with strychnia would sustain life and prevent a recurrence of the syncope in many cases.

DR. ROY read extracts from a letter written to him by Dr. Bartholow in answer to some questions on failure of the heart. By dilating the arterioles of the heart he nourished it by sending more blood to it. Digitalis does not increase the nutrition of the heart, but overworked it.

Stated Meeting, October 23, 1889.

DR. A. F. A. KING, IN THE CHAIR.

DR. R. T. EDES presented a heart showing :

Emboli of the Left Ventricle and Right Auricle ; and a Kidney Showing an Embolus.

DR. E. M. SHAEFFER presented *Two Hundred and Five Biliary Calculi*, varying in size from $\frac{1}{16}$ to $\frac{1}{2}$ in diameter, found at a post mortem.

DR. D. S. LAMB presented a specimen with the history of a case of

LYMPHADENOMA.

This specimen is a mass of enlarged and altered glands of the neck. The alteration is found on microscopical examination by Dr. Gray, of the Med. Mus., to consist in the development of true secreting gland structure in addition to the adenoid structure; and in places to a thickening of the reticular tissue. There is also some formation of the embryonic blood vessels as found in sarcomas. The words lymphadenoma and lymphosarcoma are used indifferently by some authors for the same condition; but Dr. Gray prefers to call this 'lymphadenoma.' He considers this form of tumor to be *rare*; that many so-called lymphadenomata are simply lymphomas; without true secreting gland structure.

This mass involved the glands on both sides of the neck and between; and both superficial and deep. It extended slightly over the body of the lower jaw and deeply under it; extended up to the mastoid process and backwards around the neck; extended well up on both sides of the pharynx, surrounded the larynx and great vessels; and extended downwards over the upper part of the first piece of the sternum, and over the right clavicle. It was much the larger on the right side and was somewhat nodulated. It was generally white and firm; but in places soft and purulent; in several places there were openings in the skin where pus had been discharged. Below the large mass were a number of isolated ones in the subcutaneous tissue, the size of peas. Much of the superficial portion of the tumor as well as the skin itself was dense and brawny.

There was some œdema of the tissues over the upper part of the chest showing interference with the circulation. There was some œdema in the upper lobes of the lungs. The heart was normal. The blood was of good color. The liver was normal to all appearances; the gall bladder nearly empty. The spleen very small, only 3.5 oz. The stomach, intestines and kidneys normal. There was old pelvic peritonitis and a fibroid of the uterus. But there was no involvement of any other glands than those of the neck; showing the local character of the disease. The body was well nourished. The body of the lower jaw left side for about one inch in length was thickened but no connection was perceptible between this enlargement and the tumor except that of mere contact. I was unable to get the jaw or examine it more closely.

The subject was a mulatto woman, age 50 at

death, who had been for a time in Freedman's hospital. She was removed to her home in South Washington, where I made the *post mortem* examination. I had expected some history of the case by this time, but have not received any definite information. I presume that there must have been pressure by the mass on important organs; on the jugulars causing cerebral congestion; on the air passages causing dyspnoea; on the oesophagus causing dysphagia; and there must have been interference with the movement of the jaw.

I do not look upon this case as one of Hodgkin's diseases, a name which I understand should be properly applied to a group of symptoms due to a group of symptoms due to a *general* affection of the lymphatic glands.

DR. D. S. LAMB also presented

REPORT OF NECROPSY OF A CASE OF CEREBRAL EMBOLISM (?) AND HÆMORRHAGE.

Two portions of the cerebrum of a woman about 70 years old. One from the left side shows extreme wasting and flabbiness of the posterior part of the superior parietal and much of the supramarginal lobules, beneath which the substance was unusually firm though porous. The other portion, from the right side, showed recent subarachnoidal hæmorrhagic clot in the fissures and on the surface of the ascending and superior parietal convolutions, beneath which was a recent hæmorrhagic clot and cavity the size of a hickory nut. Also a gall bladder containing several hundred small calculi. Also kidney much atrophied. Also uterus much atrophied and containing in its wall several fibroids which had undergone partial calcareous degeneration.

The history of the case was that the woman, white, aged about 70, was admitted to the Woman's Christian Association Home of this city from Providence hospital, about September 1, 1887. She had been weakminded for years, probably since the lesion of the left side of the cerebrum described; which was probably caused by embolism. While at the Home she kept her bed except as she rose to defecate and urinate; she had control over these acts. She was unable to answer questions or give any information of herself; in reply to questions she simply repeated the last words of the same. There was not apparently any paralysis; no defect of vision recorded. September 7, 1889, she had sudden and severe pain on right side of head. On the 10th she passed into stupor and so continued till death on the 14th. No paralysis nor spasm.

She seemed to require and had but little medical attention; had however, a nurse, one of the old women of the Home.

At the request of Dr. Mary Spackman, who was at the time the medical attendant, a *post mortem* examination was made by Dr. Lamb; the skull

was thick; *dura mater* attached along the longitudinal groove; subarachnoidal fluid increased in quantity; there was a depression over the left lesion described; hæmorrhage on the right side at the base calcareous, the left carotid artery especially twisted and curved. The lungs much pigmented. Slight thickening of the aortic valve. Liver dark and bloodless. Gall-bladder stuffed with calculi, its wall thickened. Spleen small; artery calcareous. Stomach and intestines normal. Kidneys contracted and atrophied. Uterus as described. Ovaries and fallopian tubes atrophied.

The mental deficiency seems to have been due to the lesion of the left side; the death to that of the right.

DRS. ROBERT REYBURN and A. W. TANCH read a paper on

TRAUMATIC TETANUS; RECOVERY.

Willie Scott, colored, æt. 14 years, No. 817 Twenty-fourth Street, N. W., some time about the last weeks in July, stuck a nail in his foot. The wound healed under domestic treatment, but a short time subsequent thereto, about one week, while playing, it broke out again, which caused quite a hæmorrhage, but it got well and attracted no further attention.

August 18, 1889, I was called to see him. Complained of pain and stiffness in the jaws, neck and shoulders; pulse a little rapid, temperature about normal, appetite good and bowels regular. R. Sodii salicylas, ʒij; tinct. colchici em., ʒj; tinct. digitalis, ʒss; syrupi aurantii, ad ʒij. Sig. A teaspoonful in water every four hours. Do. R. Pulv. ipecac et opii, gr. viij. Sig. Take at bed hour.

August 19, morning, found him apparently better; wanted to go to work, to which I would not consent, and directed the same treatment continued.

August 20, morning, complained of pain in the stomach, other symptoms about the same as on August 19. R. Morph. sulphat., gr. j; aquæ camph., ʒj. M. Sig. ʒj every four hours. Pulv. ipecac co. discontinued.

August 21, morning, he had suffered intensely all night. Muscles of back, trunk, abdomen and extremities rigid. Abdomen retracted, features distorted, and frequent paroxysms of tonic spasms. Mouth or jaws very near closed; could not bear to be touched. The entire body, from head to feet, so stiff that we had to handle or move him by the head. Pulse 110, temperature 101.5. R. Quinæ sulphat., ʒj; elix. sim., ʒij. M. Sig. ʒj every four hours. R. Bromidia, ʒj. Sig. A half teaspoonful in water every two hours.

August 21, afternoon, had slept some, was more quiet, temperature much reduced, pulse ditto, and wanted something to eat. I directed them to give him milk (good rich milk) and beef-tea alter-

nately and liberally. Quiniæ and bromidia continued, and must be kept absolutely quiet.

August 22, morning, temperature and pulse near normal, had had short intervals of sleep; had taken milk and beef-tea quite freely and doing fairly well. But, as the bowels had not moved since the 17th, ordered *R. Elaterii*, gr. j; *hydrarg. chlor. mit.*, gr. xij; *pulv. sacch.*, ʒj; *m. div. pulv.* No. xij. Sig. One powder every six hours until bowels moved. After taking second powder bowels moved freely.

August 22, afternoon, temperature normal, other symptoms about the same as in the morning, said he felt better. Ordered bromidia continued, and the quiniæ mit. to be given three times a day. I was sent for between 10 and 11 on the evening of the 22d. Found him suffering what seemed almost death—intense agony. But as I had once before succeeded, in a similar case, with bromidia, I determined to push that remedy or combination. *R. Bromidia*, ʒiij, of which I gave a teaspoonful in water immediately, and thirty minutes after gave another teaspoonful, and within thirty-five minutes from second dose he was sleeping quietly. I remained with him about a half-hour longer, during which time he slept. I then directed a teaspoonful of bromidia to be given every two hours and left.

August 23, morning, had spent a fairly good night, sleeping most of the time; had taken milk several times. Still rigid from head to feet. Paroxysms of spasms not so frequent, but cramps in chest and abdomen most threatening. Respiration difficult, temperature 95°, pulse rapid and feeble. But said he felt better, and if it were not for the cramps in stomach and chest, would feel first rate. *R. Milk punch* every four hours, beef-tea to be given liberally. Bromidia, a teaspoonful in water every hour. Quiniæ sulphat., gr. iij ter in die.

August 23, afternoon, pulse stronger and more steady, respiration not so rapid, and a great deal more comfortable. Temperature about normal, has, generally speaking, quite improved since morning. Ordered one powder of the elaterii, calomel and sugar to be given at night, and to be repeated every second day if needed. Other treatment continued.

August 24, morning, temperature and pulse fair. Cramps in chest, back and abdomen still severe and threatening. Muscles not quite so tense, but he is still as stiff as a board and can not bear to be handled other than by the head. Had slept a good deal during the night and taken nourishment quite freely. Ordered quiniæ continued (gr. iij ter in die), and a teaspoonful of bromidia to be given as often as necessary to control the spasms; in other words, that he be kept continually under its influence except while taking nourishment, which I directed them to give liberally.

August 24, afternoon, Dr. Robert Reyburn saw him, in consultation with me. He was much more comfortable, doing well. Upon Dr. Reyburn's suggestion ordered, *R. Tinct. gelsemii*, gtt. x, to be given every four hours. Bromidia continued, viz.: a teaspoonful as often as needed for control of the spasms. Beef-tea and milk to be given liberally. This line of treatment was continued with but slight variation, the patient in the meanwhile making slow but gradual progress toward recovery, and on September 16 he was able to sit up in a chair. September 22 he could walk around the room by pushing a chair before him, and by September 25 he was able to go where he pleased.

The gelsemii was continued in diminished doses, viz.: gtt. viij to gtt. vj to none. The bromidia was continued in full doses, ʒj, but longer intervals, until September 26, when all treatment (medical) ended. Total amount of bromidia taken, ʒxv, and ʒij.

A. W. TANCIL, M.D.

The above case is a typical example of the more chronic variety of traumatic tetanus, and is interesting because it illustrates very well what I believe to be the correct method of treatment of such cases.

The reflex action of the great nervous centres, and more especially the spinal cord, is so immensely exaggerated in tetanus that the slightest noise, the exposing the patient to a current of cold air, or even a slight movement of the patient, may develop a fatal spasm either of muscles of respiration, or some other of the group of muscles which control functions necessary to life.

Unfortunately, I have had too much of an experience in this disease from the year 1862 to the present time, to have seen every variety of treatment tried, including all the narcotics and nerve sedatives of the Pharmacopœia, also the continued use by inhalation of chloroform and ether. Anæsthetics, however, while they for a time do seem to modify and control the spasmodic contractions of the muscles, have in my experience never effected a cure. The only treatment that I have found to be reasonably successful is morphia given in large doses and in combination with bromide of potassium, but in order to do any good with the remedy it must be given in double or triple the ordinary doses and continuously; in other words, you must keep the patient in a condition of semi-narcotism all the time, for days or weeks if necessary.

In the treatment of the above case it was found absolutely necessary to disregard the ordinary rules of dosage and to give with a liberal hand the bromidia in quantities sufficiently large to keep the muscles relaxed. Several times during the early stages of the treatment of the case, the attempt was made to diminish the doses of the powerful agents used, but the aggravation of the

trismus and the painful and powerful contractions of the muscles of the abdomen and extremities compelled a return to the larger doses.

Patients suffering from traumatic tetanus as a rule, in the cases I have seen, die from violent contractions of the respiratory muscles which stop respiration, and of course they die very suddenly and unexpectedly.

Another most important point in the management of these cases is to insist upon the most absolute rest and quiet. The patient is to be placed in the darkest and most secluded corner of the house, away from noise and secure from the well meant but often fatal kindness of visitors and friends. Many a case has been doing well, when the excitement of a strange face or a visit from a friend, will bring on a spasm which may instantly prove fatal.

ROBERT REYBURN, M.D.

DR. SOTHORON had had several cases of traumatic tetanus. In one case he kept the patient in a semi-comatose condition with potassium bromide, chloral, hydrate and morphia; as soon as this was stopped the convulsions recurred. He then covered the patient's abdomen with a tobacco poultice and kept repeating it for several days. Recovery took place and he attributed it to the relaxing effect of the tobacco.

DR. SCHAEFFER: The effect of tobacco on this case will add to the value of this drug. It may be consoling to tobacco chewers to know that someone had been studying its effects on tuberculous families and had found that those who were addicted to the tobacco habit lived long lives while those who abstained from its use died early in life. The antispasmodic properties were recognized.

DR. REYBURN: The reflex excitability is so great that we may be compelled to use the most powerful narcotics and push them to their physiological effects. The patient should be kept absolutely quiet because the slightest noise sometimes brought on violent spasms.

DR. KLEINSCHMIDT said that he treated a case with Dr. Appleby about the time of the introduction of chloral which recovered. A colored woman was sick two days when he saw her. In one of the convulsive attacks she had broken out two of the front teeth so that there was little difficulty in administering medicines. She was given 20 grains of chloral every hour the first day, every two hours the second day, every three hours the third day, and every four hours the fourth day until recovery. The second case to recover was that mentioned by Dr. Sothoron. In a third that recovered he had given similar doses of chloral. In another case the episthotonos was well marked and death took place before any amount of chloral had been taken.

DR. FRANZONI stated that Brown-Séquard attributed the poor results obtained from potassium

bromide to the custom of administering it in too concentrated doses.

DR. ACKER said that this theory had been denied by the best authorities.

DR. EDES spoke of the antidotism between chloral and strychnia. If strychnia were given the fatal dose of chloral was much larger than if given alone. The potassium bromide should be well diluted. He had taken 100 grains of potassium bromide to test its effect upon the blood-vessels of the retinae and an ophthalmoscopic examination had failed to detect any change.

DR. J. FORD THOMPSON had tried all kinds of treatment, but that of potassium bromide and chloral was the commonest. Statistics do not prove that there are any specifics. At one time calabar bean was supposed to act specifically. Some years ago he saw two cases in powerful colored men, which occurred within a few weeks. One was caused by a bad fracture and the other by a slight punctured wound of the palm. Both had to be held by strong men during the convulsions to keep them in bed. One died of exhaustion. The other was given potassium bromide and chloral and hypodermatic injections of morphia. He supposed he would die, but recovery took place. He saw such cases in all ages and conditions of life. If the mere relaxing of the spasms cures then why not use woorara? He had given chloroform for hours without permanent effect.

The pathology of these cases is the interesting point. There has been more written about this condition than any other. Verneuil's theory is that it is due to direct or indirect infection from the horse and is caused by a specific bacillus.

The proper treatment is preventive. If all wounds are treated properly there will be fewer cases of tetanus. Most of the injuries are suppurating when the physician is called to see them. If all wounds were thoroughly cleansed and then dressed antiseptically or aseptically there would be less tetanus. The wound should be treated to avoid every kind of infection. In Halle years ago the mortality was 40 or 50 per cent.; now it is only 2 per cent., and some of these causes are considered unavoidable. This result may be attributed to improved antiseptic methods.

In nail wounds he would advise incision, cauterization and antiseptic dressings to exclude the germs of disease, and he would venture to assert that there would be very few cases of tetanus.

In some cases death is so rapid that it is difficult to explain. In one case a carpet tack caused tetanus, and the patient died in less than forty-eight hours. In the West Indies they die of tetanus in a few hours.

DR. KLEINSCHMIDT agreed with Dr. Thompson in adopting means of prevention. That it is due to a specific bacillus capable of inoculation

has been proved. Its habitat is supposed to be garden earth, and as most cases occur from wounds in the feet and hands, it is reasonable to suppose that the dirt conveys the germ.

DR. A. F. A. KING asked Dr. Thompson if tetanus ever occurred in countries where there were no horses.

DR. THOMPSON replied that he did not know.

DR. SCHAEFFER stated that Dr. Watson mentioned cases which die from tetanus in the East Indies a few hours after receiving cuts on the hands. Pasteur claims to have discovered the remedy in inoculation.

DR. REYBURN stated that "Senn's Surgical Bacteriology" contained excellent drawings of the tetanus bacillus.

DR. EDES asked if it were more common in the colored than the white.

DR. REYBURN replied that such had not been his experience. During a warm and moist summer there were a great many cases among white boys caused by the toy-pistol.

BOOK REVIEWS.

THE DISEASES OF CHILDREN, MEDICAL AND SURGICAL. By HENRY ASHBY, M.D., M.R.C.P., Physician to the General Hospital for Sick Children, Manchester; Lecturer and Examiner in Diseases of Children in the Victoria University, and G. A. WRIGHT, B.A., F.R.C.S., Assistant Surgeon to the Manchester Royal Infirmary and Surgeon to the Children's Hospital. London and New York: Longmans, Green & Co. 1889. Chicago: A. C. McClurg & Co. Pp. xix, 681. Price \$6.

This work presents many valid claims to our attention. The product of the industry of a medical practitioner and a surgeon, it covers the whole range of medical and surgical diseases incident to childhood with a thoroughness not often found in works of this character. It is based largely upon observations made by the authors in the institutions with which they are connected, and we are quite willing to concede the claim of the writers that it is founded on personal experience and observation and is very far from being in any sense a compilation from other works. It aims at being thoroughly practical, and to this end pathological details are largely eschewed. The illustrations, which are numerous and well executed, are, for the most part, original with the work, being reproductions of photographs of cases coming under the observations of the authors. A large number of temperature charts of instructive cases are reproduced, and indeed throughout the book there is plain evidence of personal labor on a large scale, the work itself being the furthest

possible removed from commonplace reproduction of the achievements of other authors. The volume is modestly dedicated to junior practitioners, but it is entirely safe to say that it fully deserves the careful attention of all classes of medical readers.

A MANUAL OF ANATOMY FOR SENIOR STUDENTS. By EDMUND OWEN, M.B., F.R.C.S., Surgeon to St. Mary's Hospital, London, and co-lecturer on Surgery, (late lecturer on Anatomy) in its Medical School. "In a practical point of view anatomy is of no use unless it can be realized in the human body."—*Francis Sibson*. With numerous illustrations. London and New York: Longmans, Green & Co. 1890.

This manual of 520 pages is just issued by the well-known firm of Longmans, Green & Co. While the field of surgical anatomy has been covered by many able writers we think the aim of the author has been so well accomplished that his work will be found a valuable addition to our medical and surgical literature. It covers the essential points in the entire range of anatomy, and is well illustrated. It also traverses the domain of the physician and the specialist. It is especially suggestive and will be found of practical value as a book for ready reference. The advanced student and the practitioner will find it well suited to their needs. Surgical diseases tersely and ably considered; fractures and dislocations, malformations and deformities are treated of, and all important operations satisfactorily described. The circulatory system, its pathology and treatment, form a specially interesting chapter. The specialties are well represented in the work, and much of valuable suggestion will be found for the general practitioner who more or less must deal with subjects which have fallen so largely to the care of specialists. In hospital practice this volume will be a practical reference book, not only in the surgical wards but also in the medical and special departments. It comes to hand from S. A. Maxwell & Co., Chicago. Price, \$3.50.

TRANSACTIONS OF THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION. Volume II. Second Session, held at Nashville, Tenn., November 12, 13, 14, 1889. Published by the Association. 1890.

In addition to a list of the members of the Association and its officers this volume contains the Constitution and By-Laws of the organization. The minutes of the Annual Meeting are given in full, followed by the President's Address, delivered by Dr. Hunter McGuire, of Richmond, Va., who concluded his able paper with these words: "As members of our beloved profession, let us strive to be first in scientific attainments, first in

integrity, first in high purpose for the good of mankind." Twenty-eight papers representing the writings of as many representative medical men are included in the volume. The mechanical execution is exceptionally fine, and this annual volume is a credit to the Association.

MONTHLY NURSING. By A. WORCESTER, A. M., M.D., Fellow of the Massachusetts Medical Society, Physician to the Waltham Hospital. Second Edition. New York: D. Appleton & Co. 1889.

This is a practical work which embodies the essentials contained in a series of lectures given by the author at the Boston Lying-in Hospital. It treats of the qualifications of nurses, care of patients, preliminary to confinement, and the arrangement of the lying-in chamber. The stages of labor are described and the care needed in normal cases of confinement. The diseases of children are next considered. The chapter entitled "The Baby" is a valuable one—as is also the one upon "Emergencies." The subjects of Pregnancy, Abortion, Miscarriage and Premature Births are well considered, and an appendix containing many valuable recipes for the preparations of foods and drinks suitable for the sick room add to its value. It has reached its second edition and is for sale generally. It comes to us from A. C. McClurg & Co., 117-121 Wabash Av., Chicago. Price, \$1.25.

MISCELLANY.

LETTERS RECEIVED.

Dr. R. J. Dungleison, Philadelphia; Dr. C. F. F. Corsch, Wells Beach, Me.; Dr. G. W. Davis, Dr. S. O. L. Potter, San Francisco, Cal.; Dr. G. W. Countryman, Mellette, S. D.; Dr. W. H. Brock, Athol, Mass.; Dr. E. Le Fever, Mountsville, O.; Ward Bros., Jacksonville, Ill.; Dr. F. W. Dimmitt, Oneida, Ill.; Dr. B. H. Harris, Groveland, Ill.; Surgeon-General U. S. Army, Washington; Dr. E. Stuver, Rawlins, Wyoming; Dr. E. Kerr, Downingtown, Pa.; Dr. L. B. Grandy, Oxford, N. C.; Dr. L. Wickham, Paris, France; The Drevet Mfg Co., Thos. Leeming & Co., Reed & Carnrick, New York; Dr. C. R. Earley, Ridgway, Pa.; Dr. H. T. Rennolds, Baltimore; Parke, Davis & Co., Detroit, Mich.; Horlick's Food Co., Racine, Wis.; Dr. J. A. Hinton, Friendship, Tenn.; Michigan Agricultural College; Dr. T. J. Whitten, Nokomis, Ill.; Dr. A. V. Wendel, Newark, N. J.; Dr. C. N. Hewitt, Red Wing, Minn.; Dr. A. N. Ferguson, Winnipeg, Manitoba, Canada; Dr. F. L. Moyne, Pittsburgh, Pa.; Dr. J. E. Chancellor, Rockridge, Va.; Dr. J. A. Robison, Chicago; Dr. M. L. Mayo, Huntington, W. Va.; Dr. A. S. Tilford, Hall, Ind.; E. K. Nash, Montrose, O.; The Hospital, London, Eng.; Malted Milk Co., Racine, Wis.; Robinson-Pettet Co., Louisville, Ky.; Dr. W. D. Rohl, Shelden, Ind.; Daniel Mahony, Philadelphia; A. Ramseyer, Lima, O.; Dr. E. A. Christian, Pontiac, Mich.; Dr. E. L. Jones, Florence, Ala.; Dr. W. S. Watson, Matteawan, N. Y.; Dr. R. L. Nourse, Washburn, Wis.; N. D. Guerry, Trinity, Miss.; Pearl C. Lewis, Catskill, N. Y.;

Wm. C. Clemison, Warrenton, Mo.; Longmans, Green & Co., The American & Continental Sanitas Co., Manufacturers Advertising Bureau & Press Agency, New York; Dr. L. Woodruff, Alton, O.; Dr. E. D. Ferguson, Troy, N. Y.; Dr. J. L. Williams, Boston, Mass.; Dr. H. H. Grant, Louisville, Ky.; Dr. W. W. Hester, Chicago; Dr. W. C. Dorset, Columbia, Tenn.; Dr. A. L. Wilson, Indianapolis, Ind.; Dr. J. B. Deaver, Philadelphia; Dr. C. N. Udell, Blakesburg, Ia.; Dr. J. E. Michael, Baltimore, Md.; Geo. S. Davis, Detroit, Mich.; Dr. G. O. W. Farnham, Beatrice, Neb.; Dr. C. R. Henderson, Deasonville, Miss.; Dr. W. H. Geddings, Bethlehem, N. H.; Dr. W. C. Dabney, White Sulphur Springs, W. Va.; Dr. A. H. Nichols, Boston, Mass.; Dr. H. Cushman, Bassett, Neb.; Dr. B. A. Watson, Jersey City, N. J.; Dr. J. T. Everett, Grinnell, Ia.; Dr. W. Nelson, Dallas, Tex.; S. S. Murdock, Boston, Mass.; Rio Chemical Co., St. Louis, Mo.; R. H. Rush, Germantown, Philadelphia; Dr. W. I. Thayer, W. M. Hoge, Brooklyn, N. Y.; Netherlands American Steamship Co., New York.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U.S. Army, from July 5, 1890, to July 11, 1890.

Capt. John de B. W. Gardiner, Asst. Surgeon, having been found incapacitated for active service by an Army retiring board, and having complied with par. 12, S. O. 155, June 10, 1890, from this office, is, by direction of the Acting Secretary of War, granted leave of absence until further orders on account of disability. Par. 3, S. O. 153, A. G. O., Washington, July 2, 1890.

Capt. Samuel Q. Robinson, Asst. Surgeon, is relieved from temporary duty at the U. S. Military Academy, West Point, N. Y., to take effect upon the arrival there of Capt. W. Fitzhugh Carter, Asst. Surgeon, and will report in person to the commanding officer, Ft. DuChesne, Utah Ter., for duty, relieving Capt. Curtis E. Price, Asst. Surgeon. Capt. Price, on being relieved by Capt. Robinson, will proceed to Ft. Wadsworth, New York Harbor, and report in person to the commanding officer of that post for duty, relieving Capt. Robert B. Benham, Asst. Surgeon. Capt. Benham, on being thus relieved from temporary duty at Ft. Wadsworth, will report in person without delay to the commanding officer, Ft. Hamilton, New York Harbor, for duty. Par. 12, S. O. 153, A. G. O., Washington, July 2, 1890.

By direction of the Secretary of War, the leave of absence on surgeon's certificate granted Capt. Marcus E. Taylor, Asst. Surgeon, in S. O. 45, Div. of the Pacific, June 13, 1890, is extended five months on surgeon's certificate of disability, with permission to go beyond sea. Par. 6, S. O. 159, A. G. O., July 10, 1890.

Official List of Changes in the Medical Corps of the U. S. Navy for the Two Weeks Ending July 12, 1890.

Asst. Surgeon J. E. Page, ordered to hospital, Mare Island, Cal.

Asst. Surgeon R. M. Kennedy, ordered to the League Island Navy Yard, Pennsylvania.

Surgeon P. H. Rixey, granted leave of absence for fifteen days.

Asst. Surgeon F. N. Ogden, promoted to be a P. A. Surgeon.

Asst. Surgeon S. Stewart White, promoted to be a P. A. Surgeon.

Asst. Surgeon L. W. Atlee, granted three months' leave of absence.

Medical Inspector T. Woolverton, await orders to the U. S. S. "Philadelphia."

P. A. Surgeon P. A. Lovering, await orders to the U. S. S. "Philadelphia."

Medical Inspector D. McMurtrie, granted leave of absence for thirty days.

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No. 4.

ORIGINAL ARTICLES.

FEEDING IN THE WASTING DISEASES.

A Report Presented to the Committee of Dietetics of the American Medical Association at its Forty-first Annual Meeting, 1890.

BY EPHRAIM CUTTER, A.M., LL.D.,

M.D. HARVARD, 1856, AND UNIVERSITY OF PENNSYLVANIA, 1857.

AND

JOHN ASHBURTON CUTTER, M.D., B.Sc., F.S.Sc.
OF NEW YORK CITY.

First Section.—Tuberculosis Pulmonalis, One Hundred Cases.

Second Section.—The Fatty and Fibroid Degenerations, Fifty cases.

Third Section.—Male Neurasthenia, Fifty Cases. The following is an abstract :

FIRST SECTION—STATISTICS OF ONE HUNDRED CASES OF CONSUMPTION TREATED BY FOOD PLANS TO BE HEREAFTER DESCRIBED.

Résumé.

Series 1. Non-arrests, twenty-one cases.

a. Cases that were not improved, nine.

b. Cases that were on partial diet, or were too irresolute, or had bad surroundings, financial, climatic, etc., twelve.

Series 2. Partial arrests, thirty-nine cases.

a. Cases that followed the treatment faithfully, nineteen.

b. Cases that did not follow the treatment faithfully, nine.

c. Cases that had bad surroundings, that died of pneumonia, etc., eleven.

Series 3. Permanent arrests, forty cases.

a. Tuberculosis, thirty-two cases.

b. Pretuberculosis, eight cases.

In 1880, the senior writer presented to the American Medical Association, an article entitled, "The Salisbury Plans in Consumption," with the full text of seventy cases. To-day we come before you not to laud or condemn Dr. Salisbury, but to simply give you in the concrete, what has been brought before us in our daily work with consumption of the lungs, as we have attacked the disease believing it to be first and last a food disease, climate and other causes being entirely secondary, and therefore this contribution will be of the more value to this Committee of Dietetics.

SERIES I.—NON-ARRESTS, TWENTY-ONE CASES.

a. Cases that were not improved, nine.

1. *Illustrative Case*.—(See Transactions American Medical Association, 1880, pp. 333-408, case 7.) August 28, 1877, M. H. S., fisherman, Lanesville (Cape Ann, Mass.), aged 33 years. Father died of phthisis. Mother living; been sick two months. He states that he took cold and went out fishing. Was exposed and took more cold; except two attacks of typhoid fever, was perfectly well before. General appearance bad. Cough is constant and severe. No hæmoptyses. No dyspnoea except on going up stairs. Severe pain in shoulders. Appetite poor. Bowels regular. Has lost flesh and strength. Night sweats copious. Pulse weak. Hands shake badly.

Physical Signs.—Dulness on percussion and crackling over right upper third front and lower third back; feeble inspiration, almost flat on percussion; no crackling, but the respiratory murmur was heard underneath. Inspection of the blood revealed spores and spore collects in abundance. Fibrin filaments thickened. Red corpuscles adhesive, sticky, irregularly massed, pale in color. Mr. S. went upon the treatment with quinine. It was his intention to come up from the Cape again, but he was unable to do so, and despite the means used, he died not long after.

Remarks.—At the time it did not seem to the writer that his case was hopeless. Still, his history teaches that one must not trust too much to first appearance. It is a disadvantage to see a patient only once. It was reported that he faithfully used the diet. It is well, however, to compare the case with some of the very sick ones that were cured as noted in series 3; the lesson taught is simply that the physician should never refuse to take a case, and should never be too free in his promises of recovery.

b. Cases that were on partial diet; were too irresolute; had bad surroundings, financial, climatic, etc., twelve.

Illustrative.—(See case 1, loc. cit.), widow, aged 43 years, small sized, thin, anxious and nervous. Asthmatic complication, old abscesses of the mediastinum, diarrhoea, dyspepsia, sleeplessness, severe cough, dulness on percussion with constant crepitant râles over both upper thirds

front. Great dyspnœa at times. Abnormal valvular sounds of the heart. No albumen in urine. Altogether the most distressed and suffering case of consumption I had seen for some time. The effect of the animal diet, baths of mineral acids, and quinine, was to relieve, in a measure, the night sweats and abdominal pains. But the appetite turned against the animal food and it would often be rejected by vomiting. She was obliged then to carry out the régime only partially, particularly as she laid all her bad feelings, distresses and sickness to her food or medicine, and never to her disease. She suffered also greatly from prolapsus of the uterus, aggravated by the severe coughing. This case was not relieved by the special treatment recommended. The weakness of mind and body, induced by the presence of organic disease in the thoracic and abdominal viscera, was too great to be reached by perhaps any treatment. Indeed, just here it may be stated that no pretention is made toward cure of any but one-third of the cases;¹ but to insure that proportion it is necessary to have the treatment strictly carried out.

The present case was one in which there was really no hope and only adopted as "A drowning man catches at a straw." It is thought best here to give simply the bad and good cases together, and let the reader judge for himself of the value of the data thus derived.

SERIES II.—PARTIAL ARRESTS, THIRTY-NINE CASES.

a. Cases that followed the treatment faithfully, nineteen.

Illustrative Case.—(See No. 21, loc. cit.) Mr. W., aged 60, in 1874 had been consumptive for two years; his occupation was that of an overseer of an umber paint mill. He had with a cough, marks of increasing debility, as loss of flesh, animation and courage. There were marked dulness on percussion, crepitant and sonorous râles over the upper part of both lungs; the blood also presented fibrin filaments and spores. It is some years since he has lived upon animal food diet; his wife has faithfully prepared the choicest meats for him, and what is more has encouraged him in pursuing the uncommon diet. The case was rather unpromising at first, owing to its long standing and extent of tubercle infiltration. He is, however (1876), comparatively well. Cough is hardly perceptible. The physical signs are still to be detected, but with less marked characteristics. He attends to his business as usual. Says he expected to die, in which expectation the community shared. The blood shows great diminution in the foreign admixtures. 1879, still living but very feeble. In October he died.

Temporary Arrests.

b. Cases that did not follow the treatment faithfully, nine.

Illustrative Case.—(See case 23, loc. cit.) Miss C., aged 22, residence Cape Cod. Seen July, 1875; amenorrhœa, cardiac trouble, dulness on percussion in upper part of both lungs, expiratory râles in same location. Blood was full of evidence of disease as shown by the enlarged white corpuscles, the spores and fibrin filaments; she had been under the hypophosphites of lime and soda. She was put upon the strict diet and mineral acid baths, and was removed to New Hampshire. She was thin in flesh and unable to walk an eighth of a mile from prostration under the necessary effort. For the next three months was not herself thoroughly convinced of the utility of the measures now proposed, still her friends were, and by means of their influence she adhered closely to diet and baths. Immediately there was an improvement in the cough, in flesh and strength which continued. She walked two miles readily. Returned home for a visit in November. Here the diet was abandoned, ate everything she liked and took medicines. Remained at home four weeks. She ran rapidly down, lingering till she felt "She could not live two days." Returning to New Hampshire she improved but little. Remained there till April, 1876, when being very much worse, she returned home to die. Died in 1878. This case shows the power of the system to resist the disease, even when not following up the treatment; this resistance ought to be more relied on.

c. Cases that had bad surroundings; that died of pneumonia, etc., eleven cases.

Illustrative Case.—(See case 27, loc. cit.) In October, 1874, Mrs. —, a woman with a very young child, that especially cried by night and kept its mother awake, was very pale and thin, coughing severely and raising largely. There was diminished resonance on percussion and crackling throughout the upper third of right lung. She adopted the diet and acid baths. In four months the cough was very slight. The physical signs diminished. Her softened lung tissue dried up. The appearance improved so much that a casual observer would have called her well. All the time she suckled her infant. Owing to the hard times she was obliged to relinquish her diet and would not accept it as a gift. Immediately she began to fail and died in the course of six months. The improvement in health kept pace exactly with the imposed diet. When she ate bread the cough returned; the expectoration was copious. The night sweats reappeared. This shows markedly the relation of animal food to consumption. It is well worth knowing, for if these things "are done in the green tree what may be done in the dry?"

SERIES III.—ARRESTS MORE PERMANENT IN CHARACTER AND MIGHT BE TERMED CURES IF OCCURRING IN OTHER DISEASES.

a. Tubercular, thirty-two.

¹ This was 1880, now we think that more can be cured.

b. Pretubercular, eight.

Illustrative Case.—(See case No. 53, loc. cit.) Mrs. Wall, Cleveland, Ohio, June 21, 1877. Present condition: Suckling a four months' child. Active and doing her own housework. Looks like a person in ordinary health. Coughs occasionally. No sputa. A good sized, rather flat-chested woman thirty-five years of age. *Chest:* Dulness on percussion and cavernous respiration over left upper third back. Dulness over the whole left back. Elsewhere normal. *Blood:* Inspection showed normal looking blood. Red corpuscles not massed; are distinct, well defined, rouleauxed, no fibrin or mycelial filaments; white corpuscles not enlarged.

This report is more interesting when taken in connection with the following history: In February 1865, Mrs. Wall had been sick in bed four months with the last stages of consumption. She was emaciated to a skeleton; weight, sixty pounds; usual weight one hundred and thirty pounds. Her physicians, who were regularly educated and skillful men, pronounced her left lung "gone"—that is, riddled with tubercle that had softened and broken down in such a manner that the pulmonary substance was removed; had become useless and of course they gave a decidedly fatal prognosis. There was at this time a great caving in or flattening of the anteroposterior diameter of the chest due to atmospheric pressure conjoined with loss of lung substance. At this time she came under Dr. Salisbury's care. The patient's mother caused the treatment to be faithfully and assiduously followed out. Improvement slowly followed. In four months' time she was able to be out of doors and visit the city. After a time she resumed her profession as school teacher and taught successfully for four years. Five years ago she married and has borne three children, all healthy and vigorous. She likes her meat diet best, lives on it and works hard. The physical signs adduced show the marks of the ruin wrought in her lung and also show the tremendous power of food in managing or in affecting the course of organic pulmonary disease even in its third and hopeless stage. This history reads like fiction. November, 1888, we heard from her that she had continued in good health. A beef eater.

Illustrative Case.—(Unpublished.)—1882. Young man. Cavities in both lungs. Heart enlarged. Emaciated as badly as preceding case. Profuse hæmoptyses. Elastic and inelastic lung fibers in sputa. Blood, tubercular. Was treated very carefully on these plans. Was cured, *i. e.* his cough ceased; the lungs healed; the heart regained its normal size; he took on flesh and strength; went through Yale college; was graduated with honors. Is well and was seen by us May, 1890.

Pretubercular Cases Treated that May Come Under This Head.

Illustrative Case.—(See case 65, loc. cit.) In April, 1876, a young man eighteen and one-half years, complained of feeling weak and listless. He had nocturnal and morning cough, with slight expectoration. He was pale, thin, and losing flesh. Consumption was hereditary on both sides of the family. There were no physical signs of pulmonic lesion. Inspection of the blood microscopically disclosed abundant signs of mischief, such as: Fibrin filaments were marked in character; spores and spore collections; mycelial filaments; white corpuscles much enlarged and too numerous; corpuscles, thin, flabby, pale, sticky, outlines not cleanly cut, aggregated. These taken together with the history and the rational signs, induced a diagnosis of the pretubercular stage. Under the use of acid baths and strict diet, the sanguineous and other signs began to disappear, so that in a year he was enabled to proceed to Germany and study music. He has been a beef eater, *i. e.* eats more of it than people usually do; alive and well, 1890.

Rationale.

1. Tuberculosis is a systemic and not a local disease primarily.

2. Tuberculosis is a diseased condition or state due to the presence of yeast in the blood with its fermentative products.

3. The yeast is introduced into the blood through the alimentary canal from starch and sugar in excess, and in a state of fermentation.

4. The physical micrographical conditions found in the blood of tubercular cases constitute the peculiar morphology so often alluded to. The main features are as follows:

a. Spores of vinegar yeast.

b. Spore collects.

c. Fibrin filaments unusually large and prominent.

d. Enlarged massal white corpuscles. This enlargement proceeding from the white corpuscles being unusually fertile niduses of the vegetation, called entophytal, similar examples of which abound in algæ.

e. Deprivation of the red discs of their coating of neurine, thus rendering them sticky, adhesive and singularly inclined to aggregate themselves in confused masses. At the same time they lose their color, their clean-cut outlines and are diminished in number relatively and absolutely.

f. Thrombi formed of the fibrin filaments; of the corpuscles; of the spore collects.

g. All of the foregoing have been photographed with Tolles' objectives, from the one-fourth to his one-seventy-fifth.

5. The vegetation may exist in a latent state.

6. It may be transmitted from parent to child

in the milk, but the greater point of interest is in the tuberculous diathesis, produced by the same feeding in families for generations.

7. The morphology of the blood is commonly present some time during one year before organic disease. In other words, there is a new physical sign of the pretubercular state; the senior writer has a monograph on that subject alone, illustrated with many microphotographs.

8. Food, then, is the agent of tremendous power that causes tuberculosis.

9. The treatment is based on the idea of removing the cause by ridding the blood of the presence of the yeast and its fermentative products by a process of starvation.

10. Tubercle is a secondary product—a result from embolism caused by the minute thrombi of fibrin filaments—of the massal corpuscles and of the spore collects, and also from mechanical and chemical effects of the embolism on the nutrition.

11. The breaking down of the tissues comes from a necrosis caused by this overloading of them with the products of fermentation.

12. The yeast is also found in the alimentary canal, on the skin, in the sputum, etc.

13. Flour has been raised into bread by the dejecta of third stage consumptives.

14. The progress of the case is best watched and studied in the morphology of the blood. The spores are diminished, the filaments removed. The enlarged massal white corpuscles are reduced in size to normal proportions; the red discs acquire their normal color, covering, and clean outlines; the fibrin filaments are hardly visible. Thus the red discs dispose themselves in the normal manner, the more perfectly as the cure proceeds. Any deviation in the regimen is indicated by the increase of the abnormal morphological elements in the blood. As the blood improves, usually the general symptoms improve, *pari passu*. We have often witnessed, under treatment, the disappearance of râles of all kinds, night-sweats, emaciation, the reduction of the heart to normal size and frequency of beats, simply because of taking away the load it had to carry, when the blood was filled with emboli, and was ropy and sticky.

15. This diagnosis by blood examinations does not exclude ordinary physical explorations; it supplements them; we find that the ordinary idea of this diagnosis in the profession is that hæmology is like urinology, and all that is necessary, is to take specimens of blood, just as we do urine, and base all our diagnosis of tuberculosis on such examinations. The very suggestion of this demonstrates how far the proposer is from having a true idea of the subject; the evidence must be collected with the least possible interval of time between the removal of the blood from its stream to the stage of the micro

scope; the capillary circulation is to be used, not the venous or the arterial; take blood from the radial or ulnar side of the forearm, by slight puncture with scarificator or scalpel; do not prick the end of the finger; the student must study the morphology of the skin as well as that of the blood.

16. There are other diseases in which the normal blood morphology is changed, to-wit: rheumatism, cystinæmia, syphilis, ague, etc.

17. This rationale explains the cough, where it is not due to local irritation in the air-passages, such as hyperæmiæ, ulcers, infiltrations, reflex irritations, to the presence of carbonic acid gas in excess; sometimes it is wonderful how diminishing the fermentation does away with the cough.

18. This rationale explains hæmorrhages as the result of local action of the vegetation on the glue tissues, the connective tissues being softened, disintegrated and broken down by the products of fermentative changes.

19. It explains the night-sweats as due to the interstitial necrosis of tissues thus throwing more work on the skin; hence the injunction to take good care of the skin, and help the lungs while they are being healed.

20. The emaciation and loss of flesh and strength are only the results of the great tissue destruction going on.

21. The sputum must be studied for lung fibers, for the various crystals that are found in asthmatic conditions and also the gravel, granular and encysted.

22. Old fashioned or fibrous consumption is due to holding of the yeast products in the stomach, to the gradual paralysis of the lungs, with the consequent hyperplasia of the connective tissues, and to the deposit of gravel in this hyperplasia of the fibrous tissues; in this condition the blood morphology is not so much altered; the diagnosis must be made on general grounds; the treatment is practically the same, however.

23. The condition of the liver and kidneys can be determined by watching the urine; it should be tested at least twice a week and kept at a specific gravity of 1015 to 1020, free from bile, odor or deposit.

24. Physiologists say that man cannot live on beef alone; the chemist says that beef contains all of the elements found in the tissues of the human body. We say, that in cases of consumption, Bright's disease, uterine fibroids, etc., where the special case has indicated a rigid diet of beef, such a dietary has been ordered and some of the patients have lived on it alone for four years; thus the dictum of the physiologist is upset.

25. It has been sneeringly said that all that was needed if the ideas here given as to consumption are true, that a man prescribe beef and hot water; yet the senior writer had his son study

the general sciences four years, medicine four more, and special cases three more years, before he was willing to leave his practice in his care; the art of treating chronic disease, even by positive food plans and judicious medication, is an extremely hard one to acquire.

26. Air is food. Yet consumptives have been cured in the rawest and dampest climates, and so many times that we must go behind the old idea that climate was the only cause of consumption; granted that bad climate helps to cause the disease, and so also will worry, trouble, grief, assist toward death; the sending of patients away from home comforts to die elsewhere is not the thing to be advised. If home comforts, good air and the proper food can be combined, by all means do it. This is written with the knowledge that pulmonary disease has been arrested by climate. But our aim is to cure the cases wherever they are, because many cannot afford to change their climate or live the remainder of their lives in the Adirondacks or Colorado.

27. Remove from the atmosphere of the patient all doubters, sneerers and those that argue, but never cure; agnostics and nihilists, not content with helping no one, they will endeavor to pull down your work. More permanent arrests could have been secured of these one hundred cases if the patient had been left alone.

28. While encouraging the patient at all times and in all emergencies, give him to understand what he is fighting; that he must not waste his nerve forces by needless thought and worry, but to hold on persistently and wait for nature to do the work; each case is a law unto itself; this can be seen by the study of the cases herein recorded; we are finite; death is certain; no man will ever cure 100 per cent. of his cases, may we say of any disease.

29. If all will take hold firmly, at least 50 per cent. of tubercular cases can be cured, judging from our own clinical experience. Now that consumption is called a curable disease, the great load is lifted off and much more will be accomplished.

30. All cases of pretuberculosis ought to be cured, because here is a condition where there has been no destruction of tissue; this is where the exception to section 28 comes in, if, the practitioner will diagnose the condition, treat scientifically, and the patient obey orders.

31. All physicians who say these plans are foolishness, and who treat their cases by morphine, maltine and whiskey, we ask for publication of cases and the percentage of cures.

32. The diagnosis of tuberculosis by blood examination, often negatively points out the seat of trouble to be in the heart or uterus, or perhaps some other organ; also, cases of uterine disease complicated with tuberculosis should not be allowed to go untreated, but in making examina-

tion, the physician must go over the whole field, and find out all of the disease; some of the cases in this series, years ago, would have been benefited if their uterine disease had been treated; granted the cause is systemic, for bad food is an etiological factor of uterine diseases, while treating systemically, use all of the modern means to attack the local pelvic troubles.

33. If men complain and say this dietary is too rigid, we will only reply that the cases have demanded it, and will be very thankful when consumption can be cured by more pleasant means than we have employed.

34. Lastly, as to Koch: In 1876 all of the morphology of consumptive blood was photographed with Tolles' objectives to the highest power, his one seventy-fifth. These microphotographs have been exhibited here and abroad, and we find none that equal them; this is written advisedly.

Bacteriology is but an extremely small portion of the micrological world. Such algologists and phytologists as Professor Paulus F. Reinsch, of Erlangen, and Dr. Fr. Ecklund, physician of the first class of the Royal Navy, Sweden, endorse this work as covering a much larger field than bacteriology does. If the proof was to be placed entirely on the results, then bacteriology must hold its head in shame, as no cures have been effected by it; but we are willing to controvert Koch on scientific grounds, and maintain the position that he has told but one-half the story; that botanists have been fighting for years as to whether bacteria were simply babies of the fuller fledged vegetations; that the bacillus was photographed in 1876; that the ability to diagnose pretuberculosis and tuberculosis by blood examinations, and the means thus afforded of watching the cases, are worth immeasurably more than the diagnosis of consumption when the disease is apparent to all.²

SECOND SECTION—THE FATTY AND FIBROID DEGENERATIONS.

1. Bright's disease, twenty cases.
2. Fibroid tumors, eighteen cases.
3. Cancer, twelve cases.

SERIES I.—BRIGHT'S DISEASE, TWENTY CASES.

We do not consider any case full-fledged Bright's disease unless there are in the urine albumen, casts and fatty epithelia.

We are continually getting cases which may have any one or two of these three signs. Such cases are hovering on the border line of health and well-marked disease, and are very amenable to treatment. Such wavering from health would oftener be detected if physicians would make more thorough examinations of the urine. Tak-

² We are ready to demonstrate, by microphotographs, facts as to the relations of the bacteria to alcoholic and acetic acid plants.

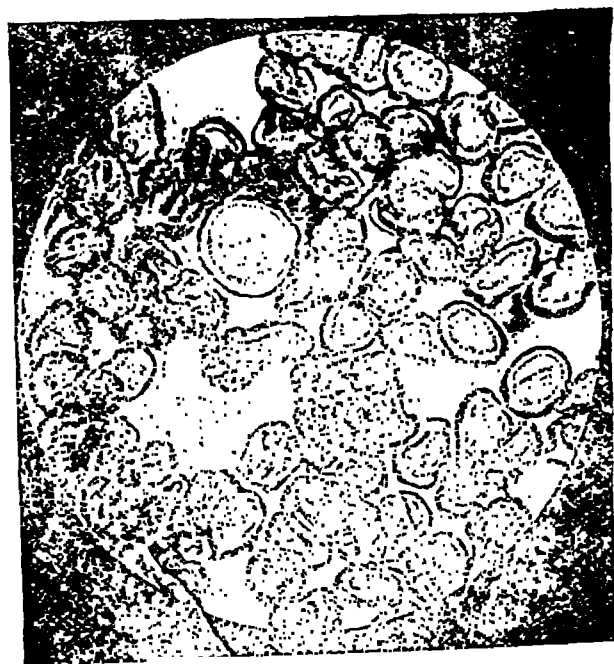


Fig. 1.

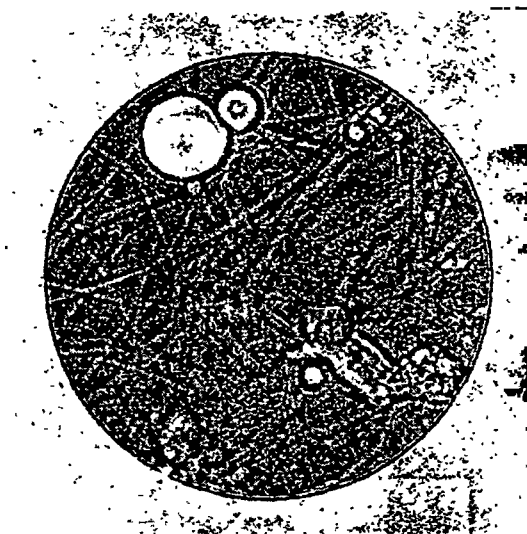


Fig. 4.



Fig. 3.

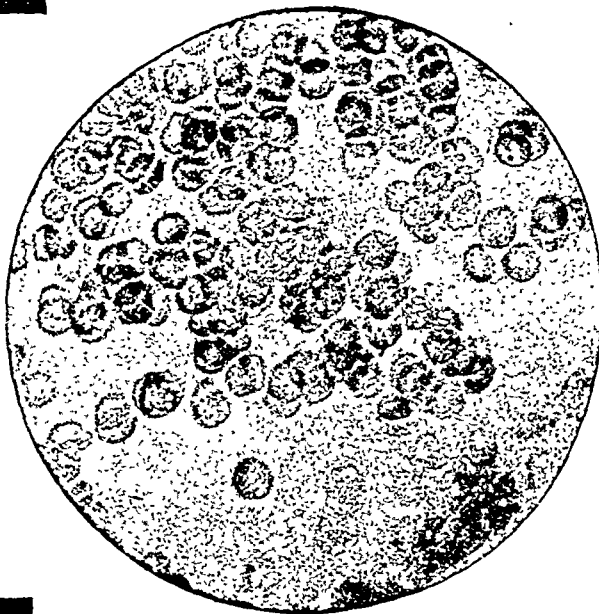


Fig. 6.



Fig. 5.

FIG. 1.—Microphotograph, 1-50 inch objective, Tolles, E. Cutter, 1896. Healthy blood.
 FIG. 2.—Microphotograph, 1-16 in. objective, Tolles, E. Cutter, 1896. Healthy blood.
 FIG. 3.—Microphotograph, 1-16 in. objective, Tolles, E. Cutter, 1896. Healthy blood.
 FIG. 4.—Microphotograph, 1-50 in. objective, Tolles, E. Cutter, 1896. Healthy blood.
 FIG. 5.—Microphotograph, 1-16 in. objective, Tolles, E. Cutter, 1896. Healthy blood.
 FIG. 6.—Microphotograph, 1-16 in. objective, Tolles, E. Cutter, 1896. Healthy blood.
 Copyrighted, 1896, and used by E. and J. A. Cutter.

ing six specimens from six consecutive days, it is wonderful to see the variance from day to day.

The following is an abstract:

Cases that would have been diagnosticated earlier if they had been more fully examined.

1. 1883, woman, 30. Called tuberculosis; blood normal; urine albuminous, and contained casts and fatty epithelia; sputum copious. Bright's disease lungs and kidneys; not treated. The urine had not been examined before in this case.

2. Man, aged 50, 1885. Bright's and diabetes. Disease had not been detected. Treatment of no avail; too late.

3. March, 1885. Called nervous prostration by a homœopath. When urine was examined later by senior writer, disease found to be Bright's. Treatment by her cousin of no avail, though a Harvard graduate and thoroughly equipped; again too late.

Deaths.

4. The late Dr. Elsborg. Bright's disease of lungs and kidneys. Great improvement. Death on resumption of old modes of life.

5. Bright's disease of kidneys and lungs. Improvement. Death from handling his own case, thus eating wrongly, overworking and allowing himself to be poisoned by sewer gas.

6. March, 1889; woman, 50. Bright's disease lungs and kidneys. Death September from pneumonia. Disease somewhat arrested.

7. Bright's disease of kidneys; 1885, man, 50. Convulsions like that of a puerpera. Chloroform to neck. Urine cleared up by diet. Took cold from riding in open carriage. Death from bronchitis.

8. Man, 50; October, 1885. Bright's disease kidneys; nearly blind. Case improved; very nervous; services discharged; death in a few months.

In Progress.

9. Man, 60; 1886. Bright's disease kidneys. Great amelioration of pains and improvement of urine. April, 1890, disease returning, and will probably die if work is not given up at which he labors constantly.

10. Woman, 40; 1883. Bright's disease kidneys. No improvement till she came into our family. Then followed diet, and urine cleared up. Disease has returned, though alive April, 1890. Not on treatment.

Cases cured; that is, that are well April, 1890, with kidneys acting rightly.

11. Man, aged 46; January, 1886. Bright's disease kidneys, cirrhosis of liver and enlarged heart. Considered absolutely hopeless.³

12. 1880. Acute fatty degeneration kidneys, placenta and cerebral blood vessels. Has since borne two more children.

13. Woman, aged 35; October, 1885. Not as serious as some of the cases.

14. Woman, aged 25; 1886. Unusual large number of casts and fatty epithelia in urine.

15. Woman, middle-aged; 1887. Had decided to transfuse blood. Well April, 1886.

16. 1879. Man, aged 60.

17. 1881. Man, aged 60.

18. 1884. Man, aged 24.

19. Girl, 13; 1884. Scarlatina; menses appeared when eruption was at its height. Two years to get well.

20. Woman, 46; 1886. Fibrous consumption, Bright's disease kidneys and small fibroid tumor of womb. Tumor gone, cough gone, urine normal, April, 1890.

SERIES II.—FIBROID TUMORS, EIGHTEEN CASES.

The following is an abstract:

Tumors Held in Statu Quo.

Three cases. The first: Immense abdominal fibroid, woman aged 60. Shall soon apply galvanism by deep abdominal puncture.

Second: Small tumor; would go away, probably, if woman would allow herself to rest.

Third: Large abdominal tumor, which did not diminish till galvanism was applied by abdominal puncture, though diet helped her very much.

Tumors Reduced and Patients Made Comfortable.

Five cases, all uterine; four, large tumors; the fifth, smaller and back of uterus. All greatly improved; tumors arrested and reduced. These would be called a cure if done by the Apostoli method of giving galvanism; (which method, by the way, was employed by the senior writer in his first operation in 1871).

Tumors That Disappeared.

Ten cases. Seven, uterine fibroids; four, large abdominal tumors; three cases of smaller abdominal and pelvic tumors.

One case of tumor of the breast; one of fibroid of the stomach; one of tumor of the neck which might be called tuberculous.

SERIES III.—CANCER, TWELVE CASES.

The following is an abstract:

1. Cancer of the face, so called by eminent men in the American Medical Association at the Philadelphia meeting, 1847. Treatment by knife and caustic had only made disease return and sore more ugly. Diet of bread and milk removed tumor and healed sore.

2. Tumor of scapula as large as a pint bowl. In the practice of the late Dr. Amos Twitchell, case 1 of this series. Diet of bread and an infusion of water dock. Disappearance of tumor.

3. Attendant, E. Cutter. Woman, 40; uncle dead of cancer; her case, cancer of womb. Disappearance of growths by rigid diet of beef.

4. E. Cutter, attendant. Woman, aged 50.

³ The result is understood to be according to the reading of the feeding

Cervix enlarged laterally to sides of pelvis; rough and bleeding; opium eater. Rigid diet; iodoform locally. Great improvement. Death on discontinuance of treatment and resumption of opium.

5. E. Cutter, consultant. Cancer of carpal bones and axillary glands; 1882; said to be hopeless by attending physicians. Amputation at middle third of forearm; animal food diet. Alive 1890. Disease in axilla quiescent.

6. E. Cutter, attendant. Woman, 35. Cancer of womb. Improvement and arrest of disease. Discontinuance of treatment; death.

7. Woman. Attendant, E. Cutter. Sister case 6. Knobbed enlargements of os and cervix uteri. Strict diet; disappearance of tumors; alive eight years later.

8. E. Cutter, attendant. Cancer of womb; discharged from hospital to die of that disease, 1882. Reduction and disappearance of disease by diet. Well April, 1890.

9. Attendant, E. Cutter. Woman, 40. Four tumors back of womb. Valvular disease heart. Tumors disappeared by rigid diet of beef; this in 1876. Woman alive and well April, 1890. Her father had died of cancer of stomach.⁴

10. Attendant, E. Cutter. Disease in both breasts. Tumors diminished in size by diet. Caught cold from exposure; pleurisy; cancer cells found in fluid aspirated from chest; death.

11. Man, aged 60. E. and J. A. Cutter, attendants latter part of illness. Cancer of larynx. Tracheotomy had been done; wore tube; suffered much pain. Wished to try food treatment. Did little good, as he could eat but little, and that finally fed to him through a catheter in fluid form. Literally starved to death. A man of great heroism, the late Dr. Wm. S. Hurlocke, of Philadelphia.

12. E. Cutter, attendant. Woman, 40; 1881; vomitus composed of a black grumous fluid; tumors of womb and stomach. Relieved and in fair health April, 1890.

Rationale.

We would have liked to have presented more of our cases of Bright's disease, tumors and cancer; but space does not permit. A few words must be given as to our ideas in attacking these cases mainly by food.

The word nephritis gives us little light as to the real causes of Bright's disease. We would say as to our belief, that the disease is commonly an expression of a systemic condition; either a fatty or a fibroid degeneration. That the fatty may be acute or chronic; the fibroid most always chronic. Some have thought because they found ganglia fattily degenerated that the renal disease was the sequence. But we ask what was the cause of the ganglionic degeneration?

The answer is: In the food eaten, in the air

breathed, in the modes of life, the clothing worn, the amount (too much or too little) taken of exercise; our ways of thought, of carrying on our business; whether we are intemperate, etc. In these long continued and steadily acting causes is to be found the explanation—and until the causes of disease are understood, few men will treat them intelligently and successfully.

The cases that we have treated have been studied as far as we were able, on all sides; we wished to know all that could be found out about the patient's life. This may seem too simple, but gentlemen, concrete things, not abstract, cause disease. But to be more particular, let us consider the food part of the question. Starch and sugar contain but three chemical elements; yet they make up a large part of the diet of many.

The old saying is that "you cannot get blood out of a stone." Certainly phosphorus and nitrogen, to say no more, cannot be made out of carbon, hydrogen or oxygen; so on the side of chemistry alone, if a man or woman will persist in feeding on starch and sugar, they must not expect nature to break her laws and change her elements into others.

But, the excessive feeding of starch and sugar will in time produce the carbonic acid, and later on acetic acid fermentations in the alimentary tract. Carbonic acid gas is a poison, it paralyzes and kills men and animals when breathed; yet how many live with their stomachs bloated with this gas, wonder why they have heartburn, and their families mourn when they drop suddenly in the street from heart paralysis due to this same gas; or they keep on their way, living in spite of their vicious feeding, and the long continued paralysis may result in a fibrous degeneration of the lungs, the stomach, the liver, the kidneys or the spinal cord; or nature, instead of building fibrous tissue under this slow-going paralysis (for it is well to remember that nature does her best always), will lay in fat in these tissues and keep the bulk of them intact as long as she can.

A man on treatment for locomotor ataxy was much improved. Meeting a friend on Fifth Avenue, he said: "I want to go into Delmonico's and eat a big dinner; will it hurt me?" His friend was a physician, but knew nothing about his treatment; he however said "It will not hurt you." The man followed his advice, filled himself up with fermenting and fermentable food, with the result that the ataxia came back immediately—why, because the spinal cord was temporarily paralyzed by the carbonic acid gas. The same thing we have seen within a year in the case of a boy on treatment for the same trouble; his fond mother let him have ice-cream and a big dinner, and his legs were almost immediately paralyzed.

April, 1890, this boy is as bright and lively as most any of his age.

⁴ For full account of these nine preceding cases see Albany Medical Annals, July and August, 1887, "Diet in Cancer," E. Cutter.

The various fibroid tumors are also instances of degeneration. Nature is doing her best, but she cannot lay down healthy tissues, so she builds with the poorest, to wit, the fibrous tissue. If this is not so, gentlemen, why did our cases recover? Granted we kept them quiet (when we could) and used every medical means our humble knowledge permitted us to prescribe; yet the main idea, and held to firmly, was that these were diseases of nutrition and must be attacked on that ground.

Cancer.

A woman of fine mind was attacked by two tumors in her 60th year, one just anterior to the right ear, the other below the right breast. By careful attention to diet, so that she lived plainly, by the use of alcohol baths, and by keeping her life in as even a tenor as possible, she lived till she was over 90, and then died of her disease which was called cancer. The tumor on the head had extended to the external angle of the eye; the tumor on the breast killed her.

A boy æt. 10 years, an orphan, picked up a precarious living setting up tenpins in a billiard alley; he was beaten with one and thrown out; the disease (*fungus hæmatoides*) commenced; when found, he was on the railroad track. The town authorities supported him as a pauper, and the disease before his death took in a great part of his body.

A woman carried for thirteen years a large abdominal multilobular, subperitoneal and pelvic fibroid. One early spring she was compelled to move into a house situated in marshy lands which had not been used during the winter. She took cold, was overworked, and the disease changed into cancer, attacked the bladder and caused death.

A young man of 30, who had lived a riotous life, died in great agony from no known cause. Post-mortem showed at least one hundred tumors in the peritoneal cavity, on the bowels, liver and other organs. The disease had invaded the vertebrae and the lungs. This man had money enough to buy good food but used the wrong.

A woman, æt. 35, was deserted by her husband. She sued for divorce and finally won her suit. In the meantime cancer appeared in the womb; the disease was arrested and held back for two years, but finally caused death.

In 1887 (*Albany Medical Annals*, July and August), the senior writer defined cancer to be "Tissue under Mob Law;" "Tissue Rioting." Tissue that the body systemic cannot govern, and hence the reversion to embryonic types and the frightful results sometimes seen in this overthrow of the law of the body systemic.

The blood, *i. e.* in our work, which extends over many years, does not show morphologically any causes; in the end it is impoverished and corpuscles changed, but we must say with all candor that we do not consider that cancer is a blood

disease but a tissue disease. This is confounding perhaps our present ideas, but disease has many phases and we must not look on these matters from one side alone.

You may call if you please the cases that recovered not cancer; but the fact remains, that they were very sick people before the treatment and are not now. Let this committee take this idea, that *cancer is tissue under mob law*, and then attack it under all of the chances offered to promote the nutrition, and the members report in another year, the results. We could give you more cases, those under treatment at the present time. One case where the right breast had been removed; the disease returned, it was burnt out with cautery and finally came under our care last August, with a sore 4 inches long, 4 inches wide and 1 inch deep, pouring out the most filthy and stinking discharge. April, 1890, this woman is still alive; the sore is smaller, the discharge less. The treatment has been a rigid diet of chopped broiled beef, the application of tannic acid and quinine ointment to the sore; these applications agreeing better than anything else. Hæmorrhage is now not frequent. Still, her chances of recovery are very small. May, disease increasing.

We leave this part of our subject till treatment is considered.

THIRD SECTION—NEURASTHENIA IN MALES.

Where often the patients objectively appear like consumptives—occurring amongst business men and students, and is due to improper feeding.

We had intended giving statistics of fifty cases, but our report has grown to too large proportions to give these cases.

A preliminary report on this subject was presented to the Richmond Medical and Surgical Society, January 23, 1890, by the senior writer, and published in the *Virginia Medical Monthly* for February, 1890:

Some thirty years ago the writer was secretary of the Middlesex (Mass.) East District Medical Society, and, on being requested by me to do so, one of the members, Dr. —, kindly stated his case to the Society, and asked for opinions and treatment. It dealt entirely with neurotic symptoms, which varied from time to time, and showed a lack of nerve force without any organic disease, which could be detected. The case was a poser; no expression of opinion nor of treatment could be drawn from the members. The doctor himself was a bright, careful, intelligent observer; and his relation showed that he had skillfully treated himself up to the then present state of knowledge.

After a series of cases had been worked up for several years, on which this paper is based, Dr. —'s case occurred to mind, and he gratified me by sending, at my request, seven one ounce bottles of morning urine voided on seven successive days. These specimens, when subjected to physical exploration, showed the presence of a *protoplasmic or colloidal discharge*, which, in other cases, had been to me a sufficient evidence of one cause of male neurasthenia, and which it is proposed to explain.

Morphological Evidence.—This physical sign is found in the morphology of the urine. (See "The Clinical Mor-

phologies," E. Cutter, New York, 1888, p. 45.) It is not that observers have not noticed this discharge; they have, still they have regarded it of no pathological significance. Where we differ from them is that *we do regard it as a valuable diagnostic sign of male neurasthenia*. The way this difference of view came about was as follows: Since 1880 we have made a practice of studying the morphology of the urine of patients, *sometimes daily for weeks and months*. But coming upon neurotic cases, in which this colloid discharge was the only appreciable lesion, and finding that when such cases were treated and the catarrhal condition was removed, they always improved, and so long as the patient would follow out directions, the improvement continued, the senior writer was led to take the position here given, and I feel convinced that this complaint is a very common one, occurring often in old and young business men and students who are apparently well, save that their complaints of irritability, pains, sometimes excruciating, making them express themselves in terms which appear, to those most interested about them, whimsical, nonsensical, or, as we used to say in our boyhood, "hypoey." And I might remark here that I now think that, if these cases I knew in my boyhood, and were known to the whole community in which they dwelt as "hypoey," could have had the benefit of what is now understood, they would have passed from the opprobria which rested upon them by proving that there was a physical foundation for their condition, just as the women who had the same term applied to them in those days would have been relieved by finding some gynecological disease.

What to Look For.—In a case of male neurasthenia, which comes to you with a long story of aches, pains, weakness, and sufferings which appear so momentous that you wonder how the sufferer could be alive, and of having want of confidence in the medical profession to discover the seat of his complaint or to relieve him. Usually there is a degree of self-confidence and positiveness of statement in his own conviction, which reminds us of the same qualities we find in our better-halves. You look the case all over carefully; no lesion is found to explain such a great departure from normal innervation. You examine the urine; it appears clear, amber-colored, of good specific gravity, normal in odor, and all that is seen if you allow it to stand over night, is a light protoplasmic cloud, occupying, sometimes, the whole of the lower half of the vial. Or if in graduate glass measure, the cloud will swing halfway between top and bottom of urine. You cannot tell by the naked eye the characters of this discharge. It is put under the microscope, and the deposit is not made up of triple phosphates or urates; but if you use (as you had better use), a one-inch objective—which must be a good one, and the best are none too good—you will find, if the case is a typical one, collections of gluey (colloid), viscid matter, with no extra amount of mucous corpuscles or mucous epithelial cells, moulded in shapes like Indian clubs, varying in color from white to a brown; then, if you look further, skeins of colloid matter, curled up in fanciful shapes, sometimes separated into single filaments, and sometimes filling the field so full of the Hogarth lines of beauty that you cannot help expressing your surprise, perhaps to the discomfort of your anxious patient. Besides this, the discharge is sometimes diffused through the urine in a light, fleecy, unorganized cloud, which is sometimes difficult to recognize, *unless one is familiar with the protoplasmic studies*. Although these three forms are sometimes found together, still they are often found separate, so that, in enumerating them, we speak, *first*, of the protoplasmic; *second*, of skeins; *third*, of Indian clubs. *Next*, you should examine *seven successive specimens of seven days, i. e., one of each day, the first urine voided on rising*. It has not seemed justifiable, in chronic cases, to base the diagnosis on one examination. For example, spermatozoa may be normally discharged once or twice

a month, and if you happen to get a specimen on the day of that normal discharge, it will be unwise to jump into the conclusion that the case is one of spermatorrhoea.

Spermatorrhoea, according to my experience of thirty-six years, is a rare disease, and the diagnosis of it is not complete unless the forms are found very much oftener than the normal discharge.

I may be wrong, but I do not consider the finding of the colloid secretion in one specimen evidence enough; it must be found in a majority of the discharges for the days of the week. When you study urine daily, you will find that it varies very much. For example, in the cases in question I have been very much surprised to find them alternating on some days with albumen, casts of the kidney tubes and fatty epithelia, which I regard as a diagnostic of Bright's disease.

In both neurasthenia and Bright's disease of the kidneys there is more or less paralysis of the parts involved. Some regard the fatty degeneration as a means of staying the effects of the paralysis. In other words, that the destruction of the tissue would proceed more rapidly were it not for the fatty degeneration. Still the neurotic symptoms differ. In simple Bright's disease of the kidneys there is little pain, and when it occurs it comes from rheumatism, and even the neurasthenia which is found sometimes along with the Bright's. The subject is not fully worked up in this aspect and hence I cannot speak so confidently, but it is a very interesting matter for consideration why the loss of albumen should not cause pain, when the colloid and perhaps albuminoid discharges which are found in the complaint under discussion assuredly does. One thing is certain, that neurasthenics thrive in the open air, and are worse in indoor air. A clergyman with this trouble said he would be all right if he worked on a farm outdoors, but he wanted to use his brains in his work. A diet substantially what is lined out below cured him so that he now works indoors and has recovered from impotency. But air is food. There is as much difference between fresh and foul air, as between fresh meat and old.

As to the Importance of this Form of Neurasthenia.—When first acquainted with this disease, I knew it was hard to bear, but did not think it was dangerous; but I have had patients die with it, and the autopsies showed no sufficient cause of death. The manner of going out was with a sudden failure of the heart as if there was not enough nerve force to run it; so I am led to take a more serious prognosis. The patients may live, like Dr. —, for thirty years, and though he considers that his life has been prolonged by the disease, because it has made him careful where he would have been careless, I believe there is danger, especially as the urine will alternate with albuminuria, fatty epithelia, and renal casts as before noted. This complaint is not due to sexual abuse, *i. e.*, as a sole cause; it is a food disease. The catarrh is mainly from the ducts of the prostate and spermatic glands.

GENERAL RULES OF TREATMENT FOR THESE SECTIONS.

Never Prescribe Raw Beef. *Preparation of broiled chopped Beef.*—Take beef from middle of the top of round of well fed cattle who were not over-driven just before death. In the handling

of these chronic cases too much care may not be observed in the selection of beef; life often hangs on the smallest detail.

Cut beef into cubes 1 inch by 1 inch by 2 or 3 inches. Free from fat and connective tissue by running it through the Enterprise chopper three times, each time cleansing the fibrous tissue from the plate at distal end of machine. Or use American chopper, which is noisy but is the best. Touch with the hands the muscle pulp as little as possible, as the human animal heat changes the character of the meat. Mould into cakes 1 inch thick and as many inches wide as needed. Broil over bed of live coals, charcoal is the best; oil or gas can be used. The beef when done should be of very dark color outside, and when opened present a reddish but not raw appearance. If the beef is rightly prepared it will be pleasant to the taste. The preparation must be done by a conscientious and humble individual: humble, because most cooks think they know everything about cooking when commonly they know nothing; and the one who has the work of getting ready this beef and cooking it has a position whose influence for good or bad cannot be overestimated.

Serve on hot water plate and season with pepper, salt, lemon juice, Worcestershire sauce, and in some cases butter.

Drinks.—Drink one pint of spring or distilled water that has been raised to the boiling point, one hour before each meal and on retiring. Cool the water to a comfortable temperature and drink slowly. Rest till meal time. Also after meals. The amount of water may be increased or diminished as the urinometer indicates. The urine must be at 1015 to 1020 specific gravity, free from odor, phosphates, bile or deposit. Drink clear tea or coffee at meals.

Baths.—Take ammonia sponge bath, 1 drachm to a pint of water night or morning. Or nitric acid baths, same proportion. Or aromatic sulphuric acid baths, same proportion. Quinine and salicin may be given in bath per skin. The acid baths, and especially with alkaloids, are indicated in sweats.

Exercise.—Passive, by massage so as to confer force. Also passive by riding in carriage. Also by riding on a walking horse. Do not wear people out with too much walking. Sick ones need their nerve forces for something else.

Drugs.—The rule may be laid down, *that the fewer drugs given by the stomach the better.* Yet cases come where there has to be the most careful exhibition of medicines. And at times these same cases will, after taking a great deal of medicine, improve almost immediately on stopping all drugs per stomach. The integrity of the stomach must be kept at all hazards. Treating these cases one learns how to wait.

Tonics.—Salicin; strychnia; pyrophosphate of

iron, cinchona; mixtures of the mild vegetable fluid extracts. English iodide of potash in small doses in asthmatic and rheumatic complications and in syphilis. Biniodide of mercury $\frac{1}{16}$ gr., an admirable cholagogue. Exsiccated sulphate of soda for constipation. Boneset, etc. *Each case is a law unto itself.*

In *consumption, tumors and cancer*, the closer patients adhere to a rigid diet of the chopped broiled beef, the better they will do. Sometimes the stomach rebels; this it does when the beef is not right, despite the protestations of the butcher to the contrary. On finally pressing the point, you will disclose that the beef has been kept too long.

Again, the stomach needs firm discipline—there is a hysterical element in some cases (the word hysteria has been poorly used), which must not be catered to and at times roughly handled. Prof. Wm. Goodell tells of how he stopped a patient vomiting by giving her a most cruel scolding. The rule is this, that the closer the lines are drawn, the better will the patient do; no man need expect to succeed treating chronic disease if he has to argue with his patients on the right or wrong of this or that procedure.

When the urine becomes normal, the blood in good order, the physician may bring in gradually some vegetable food, as toasted bread, boiled rice. It has been said we were too rigid, but gentlemen, each case is a law unto itself, and you must feed accordingly.

Bright's disease will respond better when patients are on rigid diet. Yet we have cases of business men who live on steaks and eat some vegetable food.

The same rule applies to neurasthenia. These cases usually occur in those that cannot leave their business. It must be remembered that when the supply of fermenting food is cut off, the patient, previously half drunk and paralyzed by carbonic acid gas and alcohol, slumps so to speak and lays all his trouble to his diet. At these times it is well to give first-class whisky or brandy to some cases. No wines, porter, ale or beer. Use Johnston's beef extract. The whites of eggs slightly poached.

At times patients have to eat entirely against the appetite. Usually it is not well to eat beyond the appetite. In cases where stomachic feeding must be stopped for awhile alimentation has to be done per rectum and skin. It is well for all to remember that even the most depressing of cases, where the prognosis appeared fatal, have recovered. Have all chronic cases go on treatment for a year at least and pay fee in advance each month.

We hope to present within a year to the profession a work entitled "Food and Disease for the Student and Practitioner of Medicine—Upon Tuberculosis, Bright's Disease, Tumor, Cancer, Rheumatism, Diabetes, Obesity, Uterine Disease,

Laryngeal Disease, Neurasthenia, etc., Exemplifying the need of the Use of the Microscope by all Practitioners of Medicine, and Illustrated by over One Hundred Microphotographs of Objects within and without the Body." The work to be sold by subscription only.

New York, The Ariston, Broadway and Fifty-fifth St., May 8, 1890.

DIET IN CONSUMPTION.

Read before the Committee of Dietetics of the American Medical Association, at its Forty-first Annual Meeting, 1890.

BY HERBERT JUDD, M.D.,
OF GALESBURG, ILL.

Until consumption receives less uncertain speculation, and more is written that is trustworthy of simple and satisfactory explanation, every physician has a right to his own opinion. Modern research has done much to turn the attention of the profession to this disease; further than this but little of practical value has been accomplished. With many physicians, old and young, the practice of medicine is, and always will be, but little if anything more than a matter of experiment. No claim is being made that medicine is a science, but that a common ground, a consensus of opinion, will be reached by the non-servile, practical brain-workers of the profession in the matter of reading and treating disease, cannot be doubted, when we acknowledge the rapid, intelligent improvements of the past five and ten years. The writer sprang from a pronounced consumptive type, and for the past twenty-five years has been on a sharp lookout for light upon this subject. To me it is certain that consumption is an acquired disease, and consequently preventive; that if more than 15 per cent. of all deaths in the civilized world can be traced to consumption, there must be a percentage of these fatal cases that can properly be classed as hereditary—what is generally understood as hereditary disease, that as physicians, if we turn our attention practically and intelligently to the living habits of people by whom we are surrounded and among those we daily labor, it becomes a matter of no surprise that consumption causes so high a death-rate. On every farm, in all the States, in all the villages and smaller cities, a permanent dwelling-house, built with any regard to sanitation, is a rare exception. No home can be found built after a plan of perfect sanitation. Thirty years ago, building residences upon sanitary plans was unthought of by the average citizen, and less is known now regarding the sanitary requirements of family dwellings among the teachers of our schools and colleges than is known of astronomy.

Go to our educational centres and look this matter up, and this statement will stand uncontradicted. The question of proper living, sani-

tation and diet is not entertained nor practically considered by the people of this country, or any country. They know nothing about these vital matters, and seem to care less. It is certainly our professional duty as physicians to plainly look this matter in the face and demand a better education of the people from the school-room and from the pulpit. That consumption is caused or acquired by errors of living long continued, there should be no doubt. This can be demonstrated as a fact, subject to simple proof among all classes of people claiming civilization. Nothing brilliant, startling or unknown, is in any degree attempted in this paper, but consumption, as a disease, properly considered, should plainly teach mankind that we are far short of perfect civilization. When interrogated regarding the question of extermination of the American Indian a late commander of our army, who was well versed in the affairs of men, replied: "The quickest, safest and cheapest manner of extermination would be civilization." If the most perfect individual type of the wild man of the west was bedded and slept and fed the same as the middle or better-to-do class of people in this country, I firmly believe that death would soon follow. That suboxidation or imperfect decarbonization of the blood will immediately begin and would rapidly terminate in tuberculosis. To me this fact was plainly demonstrated during the years 1866-1867 at the Albany Penitentiary. At that time it was customary for the Government to send Federal prisoners to this penitentiary, and the number consisted largely of negroes from the vicinity of Washington and other points in the South. They were brought to the prison and admitted as sound in body, and to the eye were of perfect physique. The death-rate among these negroes was large. Death followed rapidly within one and two years, and was without exception from tuberculosis. The clothing and food were ample. Possibly the change to the Northern climate had something to do with this disease and the death-rate, although the prison was always kept comfortably warm and no degree of exposure was required or occurred in the prison duty.

I have no data regarding the percentage of deaths; I do know, however, that this disease was acute in its character and was confined to this class of prisoners alone, and that the large number of deaths was remarked by the average medical student. Subsequent investigation convinces me that the air supply was much short of what was needed for healthy respiration—of what was naturally demanded by these negroes; and that the tubercular deposit, which occurred invariably in the lungs, was a direct result of suboxidation or decarbonization of the blood. At this time the Albany Penitentiary enjoyed the reputation of being the most perfect in sanitation

and discipline of any prison in the States and from this reason alone federal prisoners were sent there under contract by the Government.

When I was 1 year of age my father built a family dwelling in the village of F., State of N. Y. The house stands to-day, but little changed from the original plan among the best in the village. This house at quarterly meeting time would comfortably accommodate ten Methodist ministers. The family bedroom, in which the father, mother, and three children continually slept until the writer was 5 years of age, was by exact measurement six feet nine inches in length, and seven feet five and three-fourth inches in width, with a ceiling eight feet four inches high. This family bedroom had one window, three feet by five feet nine inches, and one door, six feet nine inches by two feet eight inches. Our food was principally vegetables, and I am now perfectly satisfied were of the fermentative type—vinegar and alcoholic fermentation, as described by Dr. J. H. Saulsbury and Drs. E. and J. A. Cutter, of New York. I am absolutely certain of this. Corn-meal was largely used, cooked into puddings with molasses. It was customary for each family to use largely of molasses. At one time I remember my father bought a hogshead of molasses in New York City, and hauled it himself from the railroad station thirty miles away. Cured codfish, pickled pork and corned beef were supposed to be always at hand in the cellar. Fresh meat was had once or twice a week from the butcher's cart, with no choice. To test the food quality of the corned beef and pork as then used, the writer procured the formula for making the pickle or brine. With the exception of "Turk's Island Salt," the directions were strictly followed. The brine was several times changed and everything done as instructed. The pork as thus pickled, and the beef as thus corned, have been subsequently used as food, and otherwise experimented with, and after a few weeks' time have been found nearly worthless as food, being eaten up by the brine or pickle. This manner of sleeping among families in this village was so common that when the children, innocent boys and girls, happened at the Friday evening exercises of the Institute, or at the Thursday evening prayer meeting, or at the regulation donation party, we were invariably called trundle-bed trash.

This village is the seat of a literary institute that was at this time liberally patronized, as it is now, by students from outside the county and State, and supported then, as now, four thrifty churches. My father was always industrious—a hard worker. He worked beyond his natural strength. He was a pew-holder in two churches, and subscribed liberally to foreign missions. This is a partial but truthful and painful statement of the common manner of living among a number of prosperous families attempting to raise

children, and I think that when Dr. Henry I. Bowditch labored in getting statistics relating to the death-rate from consumption in Massachusetts, had he gone inside of all the dwellings and investigated the manner of living at that time as to diet, alimentary and respiratory, he would not have been at a loss to have clearly and truthfully determined the legitimate cause of the enormous fatality from this disease. Possibly he would not have found the trundle-bed in every house, but from what I personally know regarding this matter, I am quite sure he would have found the condition of all the sleeping rooms occupied by growing children—its equivalent. My mother died of intestinal phthisis complicated; my father of fibrous phthisis, and four children—two brothers and two sisters—under 5 years of age, all from acute tuberculosis of the brain or intestines. My father's sister died of consumption, leaving two daughters. One died with diabetes, aged 12 years; the other is now living and in the best of health, and the mother of a vigorous family. My father's mother died with consumption, and my father's mother's father died with consumption; and during the past four years I have had under my observation a family of grown sons and daughters of marked scrofulous diathesis which can trace a line of ancestorship back to my father's mother's father, and in this line of descent are recorded twenty deaths from consumption that can be verified. The several habitations of these people have recently been traced out, and in a number of these old homesteads, during the past ten years, there has been typhoid fever, indicating, possibly, a previous state of imperfect sanitation at the time of a number of these deaths. In one of these families, as reliably traced out, all of the children, four in number, were separated early in life by the death of the mother, the father being an inebriate.

These children each were adopted in separate families. In none of these families can consumption be traced. These four children all died from consumption, aged respectively 12, 14, 16, and 17 years. I am satisfied that these children while growing were ill fed, were over-worked and ill cared for from authentic information, and that in each case there was a hereditary predisposition to consumption. The remaining families that have been identified, five in number, have run through the several generations with a hit and miss death-rate from consumption with the above stated results.

Possibly with this imperfect data at my command, and with my present inability to clearly disprove any knowledge of infection, physicians so inclined will satisfy themselves readily with the theory that the tubercle bacilli has been largely or entirely the cause of these premature deaths. However, I am not of that opinion. I

am satisfied that insanitation, improper diet, living in houses that did not begin to provide fresh air breathing capacity, has done this fatal work; that as the cause there has been this unknown, unrecognized careless indifference handed down this line of generation. Possibly some of the time it has been complicated with the drink habit. We will find ourselves to-day carelessly and without pronounced objection, submitting ourselves and our families to be transported about this country night after night, in the upper and lower berthed sectional sleeping-cars. This same careless, thoughtless principle can again be demonstrated in some of our booming smaller cities of the west which is particularly objectionable in the prairie State, where we can find cemeteries that are built in and surrounded by dwelling houses, and at the same time and without protest the burial of bodies is continued, and in the city the writer lives, it is now being practically considered, without regard to intelligent opposition, to establish permanent water-works on the well system within a few rods of the cemetery that was founded with the city and is now largely in use. The writer considers water as a food, and that it is as much entitled to consideration as such as alimentary food, and pure respiratory food, and if this article partakes in any degree of a hobby, all I have got to say is mount this hobby with Dr. Solis-Cohen's "nutrition," and if the steed is mounted with one-twentieth part of the zeal that was in the breast of Cortez, this enemy can be routed from every community.

I have never particularly concerned myself regarding the tubercle bacilli as the cause of consumption or tuberculosis, or what is being so much written regarding the infection of this disease. Nothing from this line of investigation has been brought to our notice but what every physician with thoughtful candor would naturally suspect. We are thankful for what has been discovered, and will carefully use to advantage what is found sensible reliable, to prevent consumption. To cure this disease, if we may beg this question, is simply to set ourselves at work in each of our several communities and see that every living person not only has a sufficiency of respiratory food pure and fresh, and also that none are suffering from the stomach or intestinal fermentation—the alcoholic or vinegar fermentation above mentioned. There is certainly much in this, and it is a simple matter to get intelligent people to understand that this is so. It is plainly clear to me that the physician is much, very much, to blame for the lack of understanding with average people regarding matters of diet, mixed diet, the excess of meat, animal food that in many cases must be used for years. Hardly without exception in numberless cases, where the stomach had nearly lost its functions, was weak

and rebellious, have I failed to restore it upon meat alone. The stomach is not only a receptacle for food, but it certainly is further than this, a meat digester, and if we will look over our teeth, and will study our jaw adjustment, we certainly must conclude that meat was intended to largely predominate as an article of food for man.

I think that all persons in the first stages of consumption can be relieved, permanently cured, if they will persistently yield to the will of an intelligent physician. These people all have abnormal appetites or none at all. They will insist upon food that is chemically unfit and that cannot naturally be assimilated by them. All persons seeking our advice and assistance that present any suspicion of wasting disease, should be carefully and intelligently examined. The blood and urine should be examined by the microscope, and the urine always in addition chemically analyzed. Every physician can do this work in his own office, and in his own manner, and after his own fashion, after providing himself with the necessary apparatus, the same as we do our reading or any ordinary mechanical work. We are field-workers, the most of us, but we can catch on to enough of the laboratory work of the book-maker to enable us to discriminate whether the blood of the patient be rotten or inclined in that direction, or whether the kidneys are straining such waste from the blood as is required by natural function. I have, in a simple manner, been doing this class of work myself for the past fifteen years, and during the past eight years can number persons by the double score that are now living in comparative good health. They call themselves well. They certainly do not complain. They are now surrounded with what we suppose to be fairly good sanitary conditions. They are living on a changed and improved diet, that was individually determined from experimentation, and they are supplied with large, wholesome living rooms, and at night-time have an abundance of fresh and pure air, mostly from the open window place. All of this, together with congenial business habits, make them happy, contented and industrious citizens.

The people in our towns and smaller cities who are subject to consumption, from personal observation, belong to the better, more industrious classes, and I know the shortsightedness as regards proper living has been an outgrowth of the terrible strain or ambition to get along in the world. This, without exception, has been my observation, during all these years, with those among whom I labor. This class of patients are hard to manage and control. It is almost impossible to do this; and here lies, I think, the greatest difficulty or obstacle toward a recovery. They are self-willed, independent, and are satisfied with nothing short of a servile doctor. They can not be told; it can not be read into them.

You can not force them to understand their condition. They will trifle along and throw aside all chance of recovery, partial or total, until visible signs of decay present themselves. They then possibly return to you ; probably not. We all know how this illusion controls the conceit of our patient. The effect upon the nervous system is similar to the drink or morphine habit, or the constant use of any other poison ; and from a like physiological condition of the blood I have many times been forced to this conclusion : That if, in the first stages of this disease, we could make every patient intelligently understand their condition, rather than persistently force themselves to a higher and more perfect grade of living were a cure possible, they would prefer to continue along on the premature downward path. The process of decay seems to hold its victims from the first. It soon becomes a second nature.

People generally live on better and more properly prepared food now than they did thirty years ago. It is a question, however, if as a class, the majority give themselves as good or better respiratory food as then. Facts are stubborn things, but it is the rule to find the most uncomfortable part of our dwellings, that part which is most ill-adapted to fresh air and sunlight, made into sleeping rooms. In my own city to-day there are many families among the better-to-do class that are living in the same manner as regards air-food, that I describe in this paper. I have, as far as I could, called their attention to this almost criminal matter, but they seem to be beyond my reach at present. You can tell our air-starved children as you look at them on the streets on their way to school. Follow them home and what you find regarding their sleeping room will verify your opinion. I have done this myself in many cases and have been gratefully listened to, and the suggested change has been promptly and thoroughly made. In other cases I have left the premises with a certain feeling that I had been kicked over the housetop.

During the past five years in many of the smaller towns throughout the West, there has been much improvement in the manner of building ordinary cottages, and I feel at liberty to say that in these communities the death-rate from consumption will decrease. This is my firm belief. Men raising families who begin poor, and by hard work and close living gain wealth, the matter of health among the children is overlooked and neglected. We all know this to be true, and that it is among this thrifty, thoughtless, but well meaning class, that we find our hardest work. It is among such people that we use the strongest part of our professional life, and in after years, as these people find themselves with a competence, they build for themselves more substantial and often elegant residences ; but, alas, in too many instances, as we all know,

they find themselves alone. The poor, innocent children died by the wayside. Every case of wasting disease of a patient upwards of 20 years of age that has come to me during the past fifteen years, or since the time I knew enough to understand their several complainings, without exception, gave this common history : Long continued stomach and intestinal indigestion ; years of living in what were supposed were houses fit for the highest type of civilization, that have since been found not to contain one room used for living purposes that could furnish the required amount, to say nothing about a liberal supply, of pure fresh air, and totally deficient in all additional sanitary requirements.

These are simple every-day matters that have got to be plainly met and thoroughly overcome before any radical change can be made in the death-rate from consumption. All the gain that has been made has been done in this direction. Forced nutrition, long-continued, pure respiratory food must be had in abundance. This line of work has to be done to save life in these cases, and, to be successful, must be entered upon, in most cases, years before the tubercle bacilli is on the premises. This is true as regards this disease called consumption, or tuberculosis. The tubercular cow may cut some figure in cases occurring among the milk-fed children in large cities. No such case has as yet come under my observation.

This paper is wholly based upon my own personal experience as an active worker during the past twenty-five years. I have personally accomplished enough in treating this disease to enable me to endorse the following language, as reported in THE JOURNAL, from Dr. John A. Cutter in the discussion of Dr. J. C. Wilson's paper read at the last meeting of this Association : "The treatment aims to stop the fermentation by the feeding of non-fermentative foods and proper medication, the patient is watched by studying the blood, urine and fæces. So long as there are any masses of vinegar yeast in the blood, so long is the patient in danger of lung narcosis. When the blood has become healthy, then nature has a chance to attack the lung and heal it, and it has been our experience that by incessant, ceaseless watching, by most careful diet and medication, even cases with cavities have been cured and are alive to-day."

That much could be done, and more was to be expected, in the treatment of wasting diseases, particularly consumption, was vigorously taught me by my preceptor, Dr. Albert E. Sullard, of Franklin, N. Y., during 1864-1865. Diet, forced nutrition, with unlimited quantities of fresh air, with proper medication, was persistently followed by him. I certainly owe my life to his intelligence and indomitable will, and from statistics received of him, too late to be embodied in this paper, I find other persons now living can so testify.

LEFT INGUINAL COLOTOMY, WITH REMARKS ON OTHER OPERATIONS.

Read by Title in the Section of Surgery and Anatomy, at the Forty-first Annual Meeting of the American Medical Association, at Nashville, Tenn., May, 1890.

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The object of this paper is to make some practical observations in one department of abdominal surgery.

As a preliminary to my remarks I have to present the record of a left inguinal colotomy performed at the surgical clinic of the Southern Medical College, at Atlanta, Ga.

It may be stated that the A. C. E. mixture was used as the anæsthetic, premised by a hypodermic of morphia gr. $\frac{1}{4}$ and atropia gr. $\frac{1}{320}$; and that the large intestine was distended by a copious enema of tepid water previous to the operation.

The expectation in undertaking to make an artificial anus, was that by carrying off the fæcal matter and thus relieving the rectal tumor of all irritation, there would result an atrophy of the structure, favorable to its removal by a subsequent operation. In any event, however, the increasing constriction of the recto-colic induration indicated such an obstruction to the evacuation of the contents of the bowel that it was only practicable when the fæcal matter was kept in a semi-fluid state by the use of laxatives or enemata. The report of the case is as follows:

"A white man, 38 years old, came under the care of Dr. J. McF. Gaston, at the Providence Infirmary, during the month of November, 1889, for a growth in the rectum. After the use internally of Fowler's arsenical solution, with succus alterans for several weeks, and the local application within the rectum of iodoform with balsam of Peru daily without improvement of the induration, colotomy was considered proper to remove the increasing impediment to fæcal evacuations.

"Accordingly, at the regular surgical clinic, on December 4, Dr. Gaston, with the assistance of Dr. W. P. Nicolson, proceeded to make an incision, running in the line from the anterior superior spinous process of the ilium to the spine of the pubic bone, into the peritoneal cavity. The surface of the sigmoid flexure of the colon presented in the wound, and its serous and muscular coats were attached by continuous iron-dyed silk suture to borders of the incision, bringing the serous parietal membrane in contact with that of the intestine, so as to have an oval space of $1\frac{1}{2}$ inch exposed. Iodoform was dusted over the entire surface with iodoform gauze placed in the opening, and the whole covered with antiseptic sublimate gauze, over which a layer of absorbent cotton was secured by a bandage around the body.

"The temperature and pulse showed slight increase during the following days, and the stitches

were removed on December 10, the adhesion being complete.

"On the 12th the patient was found with a pulse of 120 and temperature of 104° , having a profuse perspiration following rigors during the night. The wound was granulating, and in all respects was in good condition, but the tongue was much coated, and a discharge from the anus indicated disintegration of the rectal tumor. This aggravation of general condition was therefore attributed to septic contamination from the breaking down of the induration, having no connection whatever with the previous operation. The patient was put upon sulph. quin. grs. v, bic. soda grs. vj, calomel gr. j, in capsules every two hours until five doses were taken, which induced fæcal evacuation.

"In the meantime the rectum was washed out with a solution of boracic acid, and the mixture of balsam of Peru left in the rectum. All local applications had been suspended after the operation, as there was no prospect of accomplishing any change in the tumor, but the above course was pursued daily from this time.

"On the afternoon of the same day the temperature had fallen to 100° and the pulse to 110 beats, and on the day following they became normal.

"A combination of Huxam's tinct. of cinchona and serpentaria, tinct. nux vomica and chlorate of potash was given every two or three hours, and on the 14th, his condition being favorable, preparations were made for completing the colotomy.

"With the assistance of Drs. Divine, Elkin, Nicolson and Murray, Dr. Gaston completed the operation in the following manner:

"Hypodermic of morphia and atropia was given; cocaine, 4 per cent. solution, was applied to granulating wound; a tenaculum was secured in the coats of the intestine near each angle of the incision to lift it up and put it on the stretch, a small puncture being made with a knife at one end of the proposed line of opening, a probe-pointed bistoury was pressed through this for the division of the walls of the colon to the extent of $1\frac{1}{4}$ inch. Retractors were used on each side to draw the cut edges back, and a plug, made by tying oil silk around cotton, so as to bulge in the form of a ball, was pressed into the bowel and retained by a compress of gauze laid over the expanded corners of the oil silk. A fold of cotton was firmly secured over all by a broad roller bandage around the body. There was but little sensation of pain by the patient, and his general condition was good subsequently, under the continued use of $\frac{1}{2}$ gr. of gum opium at night. He has had the dressings renewed daily with copious fæcal evacuations from the opening, and but little discharge from the anus. The boracic solution and iodoform, with Peruvian balsam, continue to be applied twice a day in the rectum

for the correction of the disintegrating process in the tumor.

"On the 9th of January, 1890, Huxam's tincture mixture was discontinued, and a combination of mur. tinct. iron and tinct. nux vomica ordered four times a day to counteract a tendency to night sweats. In all other respects the case is progressing satisfactorily, except that a swelling has occurred to the left of the anus, connected with the carcinomatous degeneration."

The further observation of the patient while in the infirmary demonstrated the entire success of the operation in establishing a direct outlet from the colon. By securing a plug over the opening with an elastic strap the evacuations were controlled so as to have the motions of the bowels at fixed periods. There was very little, if any fecal matter discharged by the anus, though the disintegration of the carcinomatous tumor led to some escape from the rectum daily. The mixture of iodoform with balsam of Peru was thrown into the rectum after washing out with a solution of boracic acid, for a time; but finding that the boracic solution passed up and out at the artificial anus, so as to run the risk of contamination by dislodging the debris, this was ultimately abandoned. The swelling referred to in the clinical report lessened under poulticing, with the occurrence of suppuration, which escaped through the anus. An increase of appetite, with sleep at night, and a hopefulness on the part of the patient led to his discharge from the infirmary. His brother has reported his condition from time to time, stating that the gluteal abscess broke externally and gave exit to some fecal matter with a purulent discharge from the opening near the anus.

The last communication, dated May 15, 1890, states that the patient cannot last but a few days longer, and it is probable that ere this death has occurred.

At different times I have reported two other cases of carcinomatous tumors of the rectum which terminated fatally without resorting to any operative measure; and the question which is presented for solution in similar cases bears upon the propriety of early extirpation with or without an artificial anus. I am convinced that left inguinal colotomy by the process adopted in this instance of effecting a primary union of the peritoneal coat of the bowel and the lining of the abdominal wall, is the most effective mode of producing an artificial anus. It is very simple and easily done, without any possibility of the escape of the contents of the colon into the peritoneal cavity, which is liable to occur in the opening and attachment of the margins of the gut and the parietes at a single operation. This primary union of the parietal and intestinal surfaces by adhesive inflammation is also well suited to the relief of stenosis of the descending colon, and may be resorted to

in the transverse colon by attachment to the parietes in the epigastrium with facility.

In consultation with a colleague two years ago, I saw a case in which constriction of the descending colon could barely admit an intestinal tube, and only when the fecal matter was in a semi-fluid state could evacuation be effected. But from time to time relief was thus afforded, and for several weeks it was hoped that dilatation might be accomplished. The case, however, terminated fatally, and upon the post-mortem examination it was verified that the indurated band was circumscribed in such form that an outlet above the constriction would have been entirely practicable by the attachment of the intestinal and parietal walls. Had an artificial anus been effected, it is a fair inference that complete occlusion would have ensued at the constriction, and the consequent atrophy of the tissues would have proved favorable to the excision of the diseased structure.

We may rely upon the diminution of the activity of the vascular supply in tissues which are left at rest, and when the function of the intestinal canal is entirely suspended by the discharge of the contents at a certain part of the tract above a stenosis, all below must undergo a gradual loss of vitality which renders operative measures less liable to troublesome consequences.

The principle involved in cutting off the passage of the contents of the intestines from certain portions is demonstrated not only by establishing an outlet externally, but also by connecting one portion of the intestine with another in such a way as to bring the segment above a constriction into communication with that below it. Thus a stenosis or contraction of the lumen from any cause, is excluded from the intestinal tract, and the new channel serves to bring the upper and lower portion of the canal into direct relations.

While I lay no special claim to priority in the presentation of the merits of intestinal anastomosis to the profession, yet it is not out of place to reiterate the statement made in my paper on the "Surgical Relations of the Ileo-cæcal Region," at the meeting of the American Medical Association in 1886. It is upon record in *THE JOURNAL* that the following paragraphs appeared as parts of my paper:

"Stenosis from fibrous depositions or malignant growth in the vicinity of the ileo-cæcal connection would seem to warrant the removal of the entire structure involved.

"The practicability of relief in this class of cases by effecting a direct communication between the ileum and colon so as to cut off the passage through the ileo-cæcal valve, is worthy of consideration.

"The diseased structures become atrophied or may be excised subsequently. If it should be desirable to effect an immediate passage from the ileum into the colon, with a view to accomplish

the resection of the diseased structures on the same occasion, there could be no difficulty in proceeding upon the same principle as indicated by my punch process for the communication of the gall bladder and the duodenum.

"We may imitate nature in her effort to obviate the difficulty of constriction in the natural course of adhesions and a fistulous communication directly, by adopting the measure for uniting the coats of the intestinal canal above and below the point of stricture, and thus establishing a direct route for the passage of the contents of the alimentary canal by cutting off the obstructed coil of intestine. So soon as the direct artificial communication between the ileum and colon is fully established through the opening made by separation of the tissues included in a circular or oval row of stitches, the cessation of the passage through the ileo-cæcal valve must lead to a gradual atrophy of the structures adjoining on either side, and in case of simple stenosis, obliteration of the canal will ensue, while if carcinoma exists, there will be such a diminution of vitality in the healthy attachments as to lessen materially their susceptibility to shock or inflammatory action, so as to admit of the requisite operation for removal by resection and suturing for closure of the divided ends.

"In case of simple stenosis or malignant growths involving the ileo-cæcal connections, ileo-colostomy is indicated."

The process of effecting the anastomosis of one part of the intestinal canal with another is illustrated by cuts so that it cannot fail to be understood, and reprints of the paper can be furnished to all who desire information on the subject.

In regard to the mode of effecting the intestinal union considerable diversity exists. While the operations of Masonneuve, Langier, Hacker and Senn differ materially from mine, it does not matter much by what process the apposition is maintained, so that an opening is established, whereby the passage of fæces may occur from the portion of the intestine above the disease to another below it.

The grand result aimed at is the continuity of the intestinal canal in cases of obstruction from organic stricture; and the attachment of a portion of the small intestine above such a constriction, to a portion of the same or to the large intestine below, with a provision for free transit of the contents, must obviate the necessity of an external outlet by an artificial anus. Notwithstanding the high estimate placed upon Greig Smith as an authority, it must appear to every considerate observer, that he advises a resort to artificial anus in cases of obstruction which might be effectually relieved by the process of intestinal anastomosis which I have urged.

The record of another operation may be appropriately introduced in illustration of an important phase of abdominal surgery. This was gastro-

my for occlusion of the œsophagus just above the diaphragm.

As there is no history of the case given in the clinical report, it may be stated that an injury was inflicted in the early youth of the patient, from swallowing a briar along with a berry, which stuck in his throat. From time to time he experienced some difficulty in swallowing, and occasionally the impediment was such as to limit him to fluid diet, such as milk with raw eggs. On several occasions he had experienced so much inconvenience as to require medical advice; and being called in consultation about a month prior to the operation, an attempt was made with bougie and a stomach tube to pass the constriction. The patient had so little capacity or toleration for any examination of the gullet that nothing was accomplished in the way of dilatation, and I then recommended him to submit to a radical operation. He had been able to swallow beef soup and other fluid nourishment up to this time and was fairly nourished, so that he declined my proposition. The following details are given in the report:

"The patient was a white man 35 years old, under the care of Dr. A. C. Moreland, who requested Dr. Gaston to undertake the operation of gastrostomy, after attempting rectal alimentation for two weeks; and the case was accordingly turned over to him on July 8 for preparatory treatment. This consisted in the addition of $\frac{1}{2}$ oz. of tincture of Peruvian bark to the nutritive enemata every four hours, until July 13, when the operation was performed in the following manner:

"An incision, 4 inches long, extending from the median line obliquely across, 1 inch below the cartilages of the ribs on the left side, was carried through all the structures into the peritoneal cavity. Four fingers of the left hand were introduced, and after considerable difficulty, owing to the contracted state of the coats of the stomach, the organ was brought into the external opening. Two strong silk ligatures were passed at a distance of $1\frac{1}{2}$ inch through the walls of the anterior portion of the large curvature of the stomach, and secured by an assistant, while an incision of 1 inch was made in the intervening tissue, entering the cavity. The forefinger of the operator's left hand was then passed up to the cardiac orifice, and with this as a guide, an olive pointed elastic probang was introduced and carried up through the constricted part, about 2 inches above the cardiac opening, requiring only moderate force in the passage of a bougie $\frac{1}{2}$ inch in diameter. The edges of the parietal peritoneum were closed with continuous catgut suture to the point where the incised walls of the stomach were drawn into the external wound, and then secured around this by stitches, including only the serous and muscular layers, at a distance of $\frac{1}{2}$ inch from the edges of the stomach. A deep interrupted silk suture was

used to close the parietal wound up to the included margins of the gastric walls; and these were attached to the edges of the parietal incision, by first passing interrupted stitches of silk and catgut alternately through both, which were left for the time without being united. A silver canula of $\frac{1}{2}$ inch diameter, $\frac{3}{4}$ of an inch long, having flanges at both ends, was now introduced into the opening, and the stitches tightened and tied around the entire margin of the gastric aperture so as to fix the canula in its position. An India rubber stopper closed the tube, so as to be removed at will, for the introduction of nourishment. The tegumentary union was covered with iodoform, with antiseptic cotton, and a sheet of protective oil cloth outside, the whole being secured by turns of a broad roller bandage around the body.

"After recovering from the effects of the anæsthetic (A. C. E. mixture) the patient took a sip of water, declaring that it went into the stomach, and afterwards used milk and lime water, or milk punch repeatedly in small quantities. But this was followed on the second and third days by regurgitation. On the evening of the 16th milk was thrown into the stomach through the canula, but returned immediately by the contraction of the stomach.

"From the outset, after the operation, enemata of beef soup, corn meal gruel and tincture of Peruvian bark were kept up every four hours, with a view to relieve the stomach; and after this unfavorable experiment with feeding by the mouth or the canula, the necessity of continuing this mode of alimentation was very apparent.

"The temperature and pulse beat had not gone much beyond the normal prior to the morning of the 17th, when all had changed for the worse, with an accelerated pulse and temperature of $103\frac{1}{4}^{\circ}$ F. It had been necessary to draw off the urine with the catheter frequently, while at times it was passed voluntarily, and the quantity on this occasion exceeded $\frac{1}{2}$ pint, showing that the secretion or excretion was progressing regularly.

"There was no distension of the abdomen indicating local peritonitis, and the patient swallowed peptonized milk with lime water without greater difficulty than on previous occasions. But the mind was somewhat impaired, and the vital powers evidently giving way, so that it gave no surprise to learn that he died at 2 P.M. of that day, being the fourth after the gastrostomy was done.

"An autopsy, four hours after death, showed the external wound united, with the exception of a single point in the peritoneum, near the border of the gastric attachment, while the union between the gastric and parietal walls was complete. The stricture in the œsophagus embraced all its coats for an extent of 2 inches, and was much thickened and indurated, with a tendency to disintegration of structure immediately below this hard mass.

"The indications of scirrhus degeneration are such that there was no prospect of final relief, even should the patient have survived the measure of temporary alimentation. The specimen will be submitted to examination by the microscope, for decision as to the character of the disease."

The cause of death in this case was clearly inanition. He persisted in refusing to submit to the operation, in the hope that the occlusion might yield, until his vital force was too much exhausted for recuperation. A lesson is conveyed by these fatal results of delay in such cases, and the surgeon should urge patients suffering with difficulty of deglutition to avail themselves of gastrostomy while still able to take nourishment, as they are in a much more favorable condition for recovery. I have had two children brought to me for examination in the past two years who suffered from swallowing caustic fluid, which in the cicatrization left stricture of the œsophagus below the middle. They were fairly well nourished by fluids, and an operation for attaching the stomach to the parietes of the epigastrium would doubtless have proved successful at that time. But the parents declined this, and also refused to subject the little patients to the inconvenience of dilatation by bougies. The result was of course the death of both in a comparatively short time. One of the practical observations which presses itself upon our attention in these cases is the inefficiency of rectal alimentation for sustaining the powers of the organism for any considerable period, leading finally to inanition.

THE VALUE OF ATROPIA IN ENURESIS.

Read in the Section of Diseases of Children at the Forty first Annual Meeting of the American Medical Association, held in Nashville, Tenn., May, 1880.

BY R. B. JAMES, M D.,
OF NEW YORK CITY

In December, 1888, Dr. Simon Baruch read before the New York Academy of Medicine a paper (*Archives of Pædiatrics*, April, 1889), in which he discussed "Nocturnal Enuresis in Children, and its Treatment," bringing to the notice of the medical profession the great value of the alkaloid atropin in this affection, as evidenced by results obtained in quite a number of cases in which he had used it. But he added that since his cases had not been very long under observation, he could not predict the ultimate result to be obtained.

Dr. Perry Watson, of Jersey City, read before the American Medical Association, at its last meeting, a paper in which he reported in detail thirty unselected cases of enuresis all cured or greatly benefited by this drug. Prompted or encouraged by such glowing accounts of the virtue of this drug, many of the profession resorted to

its use with great confidence and expectations; but a long and faithful trial of it has scored another failure in our search for specifics; for some of us, at least, have found that the number of cases of enuresis cured by atropia, during its administration, is truly great, but the number remaining cured when the drug is stopped is small indeed.

The writer, while resident physician in an orphan asylum in New York, had under his charge many cases of enuresis that had resisted belladonna, strychnine, and the other lauded remedies. After hearing Dr. Baruch's papers he determined to give atropia a trial. Fifteen of the worst cases among the smaller children, from $3\frac{1}{2}$ to 9 years old, in which no cause for the trouble could be made out, were selected. Some of them wet themselves alternate nights only, others every night, while a few suffered from diurnal as well as nocturnal enuresis. In this institution all the smaller children are put to bed at 6 P. M. and made to rise three hours later, at 9 P. M., and urged to urinate.

The following plan of treatment was instituted: I made a solution of atropia sulphate, of which one teaspoonful represented $\frac{1}{100}$ gr. of the drug. Of this solution, for the first night, each child had one teaspoonful at 6 and another at 9 P. M., and this to be increased by one teaspoonful every night till a controlling dose was reached for each case. None of them were benefited by less than $\frac{1}{100}$ gr. at night, *i. e.*, $\frac{2}{100}$ gr. at 6, and $\frac{2}{100}$ gr. at 9 P. M., while others require as much as $\frac{8}{100}$ gr. (divided as above). One case was given as much as $\frac{1}{10}$ gr. at night without showing symptoms of poisoning.

It may be stated that nothing short of the quantity that produced full physiological effects was of any avail. This point was insisted upon by Dr. Baruch in the paper referred to. After the controlling dose was ascertained for each case it was repeated every night for about one month, when the drug was withheld altogether. It was found that many of the cases were completely relieved, while others were not benefited. The latter were immediately put on their controlling dose and an attempt made to diminish it, "to taper off," so to speak, but without much success in this, though in no case was it found necessary to increase the original controlling dose, except in one case (12), where it lost its effect.

Now, of the cases "completely relieved" the enuresis returned in all, with one exception, in periods ranging from one to six weeks. The case (8) that was cured was a healthy boy but slightly affected. These cases were put on their controlling doses as they relapsed, and an attempt was made to "taper off" with them also, and in some cases a considerable reduction of dose was effected. These cases were kept under close observation for eight months, during which time

many of them would go without the drug or on reduced doses from one to four weeks without wetting themselves; but sooner or later the relapse would occur, and at the end of the eight months they were but little better than when we started treatment.

It can be seen how any one who has not kept a long watch over his patients could readily arrive at the conclusion that permanent relief had been obtained in most of these cases, especially if he depended on the matron or person in charge of his cases for his information; for after such complete relief afforded by the treatment she is slow to acknowledge a relapse, and it is only after the closest scrutiny and questioning that you can arrive at the actual state of affairs. Such, at least, has been my experience, for not a few of these cases reported here were marked cured in my notes, after questioning the matron carefully, but on visiting the wards myself early in the morning I found that such was not the case. No doubt this element in human nature is largely responsible for the erroneous conclusions arrived at and published by those who rely too implicitly on the information gained from attendants.

Below is a short report of the fifteen cases, as to age, sex, controlling dose, effect and result of treatment. The doses mentioned were always given half at 6 and half at 9 P. M. Case 1 may be taken as the typical case; those doing worse or better are the exceptions.

Case 1.—Mary G., 9 years, March 2, 1889. Controlling dose, $\frac{1}{100}$ gr. ($\frac{2}{100}$ gr. at 6 and $\frac{2}{100}$ gr. at 9 P. M.). May 18, has not wet bed for one month, stopped atropia. July 1 relapsed; atropia resumed. Nothing less than $\frac{6}{100}$ gr. will control her for any length of time. October, 1889, enuresis returned when drug was stopped.

Case 2.—Oscar L., 6 years and 6 months. March 2, Controlling dose, $\frac{1}{100}$ gr. ($\frac{1}{100}$ gr. at 6 and $\frac{1}{100}$ gr. at 9 P. M.). Results similar to case 1, save as to date. October, 1889, enuresis returned when drug stopped.

Case 3.—Eva R., 5 years and 6 months. Controlling dose, $\frac{1}{100}$ gr. April 22, has not wet bed for one month. Gradually diminished dose without return of enuresis. October, 1889, does not wet bed every night; a great improvement.

Case 4.—Hannah C., age 8 years. March 2, Controlling dose, $\frac{1}{100}$ gr., which produced symptoms of poisoning. Did not lessen dose. Results similar to case 1, except she had longer relief when drug was stopped. October, 1889, enuresis returned when drug was stopped.

Case 5.—Felix H., 6 years. Controlling dose, $\frac{1}{100}$ gr. May 1, relief complete, stopped drug. July 1, wets bed occasionally. Drug resumed October, 1889; cured completely.

Case 6.—Pauline P., age $6\frac{1}{2}$ years. March 2, Controlling dose, $\frac{1}{100}$ gr. April 22, has not wet bed for one month. Atropia stopped; immediate

relapse. Atropia resumed; attempt to reduce dose; no success. October, 1889, not cured.

Case 7.—Henry W., age 7 years. March 2, Controlling dose, $\frac{1}{16}$ gr. May 1, relief. Gradually diminished dose. July 1, relapsed; drug resumed. October, 1889, not cured.

Case 8.—Isadore S., age 7 years and 6 months. March 2, Controlling dose $\frac{1}{16}$ gr. April 22, relief; stopped drug. October, 1889, completely cured.

Case 9.—Maurice S., $6\frac{1}{2}$ years. Controlling dose, $\frac{1}{16}$ gr. Result similar to case 1. October, 1889, not cured.

Case 10.—Abe S., $5\frac{1}{2}$ years. Controlling dose $\frac{1}{16}$ gr. Result similar to case 1. October, 1889, not cured.

Case 11.—Sarah R., 7 years. Controlling dose, $\frac{1}{16}$ gr. Result similar to case 1. October, 1889, not cured.

Case 12.—Peter S., 7 years. March 2. Controlling dose, $\frac{1}{16}$ gr. May 18, relief; atropia stopped. June 20, enuresis returned; put on $\frac{1}{16}$ gr.; does not control; increased to $\frac{1}{8}$ gr. without effect, so drug was stopped.

Case 13.—Lily F., $3\frac{1}{2}$ years. March 2. Controlling dose, $\frac{1}{16}$ gr. May 1, relief; stopped drug; partial relapse. October, 1889, much benefited.

Case 14.—Hattie R., 6 years. March 2. Controlling dose $\frac{1}{16}$ gr. April 22, relief, but relapsed when drug was stopped. Attempt to reduce dose, with little success. October, 1889, not benefited.

Case 15.—Rachael E., 7 years. March 2. Controlling dose, $\frac{1}{16}$ gr. April 22, relief; drug stopped; relapsed; drug resumed. October, 1889, not cured.

In only one case did any symptoms of poisoning occur, and in this not sufficient to warrant a suspension of the remedy, or even a diminution of the dose. Under the long continued use of the drug, though in such large doses, there were observed no bad effects from it; but, on the contrary, the children, being relieved from the stigma of being a "bed wetter," were brighter and less constrained than when the drug was left off, with the consequent return of the enuresis. It may be well here to state that some of these children, though under the age of 5 years, were so ashamed of their affliction that on finding they had wet their beds at night, would exchange their wet sheets for dry ones from the cots of their slumbering neighbors, thus shifting the coming lecture to innocent shoulders; so great was the effect of the so-called "moral treatment."

As may be seen, every case was absolutely controlled so long as the treatment was kept up, except in one case, where it lost its effects after some months of complete relief, and this for some unknown cause which was never overcome, though the drug was pushed to a dangerous point.

It is a matter of no little regret that after such a promising beginning, the final result shows such a little gained.

On October 1, after eight months of treatment of the fifteen cases, two cases were cured, and these mild cases; two others benefited, in that they did not wet their bed so often; one it ceased to benefit, while ten showed little or no improvement when the drug was stopped.

I stated that in some of these cases the dose could be diminished after the controlling dose had been continued for some time. Now, any long use of this diminished dose would lead to a relapse, and it is more than probable that the length of time before this relapse occurred was but little if any greater than it would have been had the drug been withheld entirely; and I am compelled to acknowledge that anything short of the full controlling dose is of little value, though since the effect of the full dose lasts so long after the drug is stopped, one would suppose that smaller doses would serve to keep up this effect. Such was the principle upon which I worked, but without any great success.

In these cases there could be made out no cause for the trouble. They were all in good health otherwise; their food and hygienic surroundings were all that could be desired. They were allowed no fluid at night, but under the atropia treatment this point was not insisted upon, as it seemed to make no difference whether they had a moderate amount of fluid at supper or not. In short, these cases represented what we often find in private practice. Children in seemingly perfect health and under good moral training yet persist in wetting themselves and their beds without any assignable cause.

Now, since the long continued use of atropia has no ill effect nor tolerance established that requires an increased dose, and since undoubtedly the vast majority of these cases can be controlled by the drug, we can claim for these children and their mothers a valuable friend in atropia. When a child is too large to wear diapers, or they cease to be effectual, we can with confidence offer a substitute in the shape of a full dose of atropia, to be repeated every night until the child has outgrown his infirmity, and this point can be tested by having the drug withheld from time to time.

It will be well to add, in conclusion, that many other cases of enuresis were put on atropia, and it controlled them in every case under 12 years of age; and at this writing, April, 1890, thirteen months after the treatment was begun, these children are about as they were last October, receiving their nightly doses of atropia, and improved only as we have a right to expect with the advance in years. As to those over 12 years old who received this treatment, which was quite a number, can only say they did badly—cannot

recall a case that was benefited in the least; and I fear that children over this age suffering from enuresis are subjects of such inherent defects that other drugs or means than atropia must be sought ere they are relieved.

160 East 92d street, New York City.

FACTS VERSUS FIGURES. YELLOW FEVER INOCULATION.

Read in the Section of State Medicine at the Forty-first Annual Meeting of the American Medical Association, Nashville, Tenn., May 21, 1890.

BY GEO. M. STERNBERG,

MAJOR AND SURGEON, U. S. A.

My report on Dr. Freire's yellow fever inoculations having been recently published in the annual volume of the Marine-Hospital Service, I should not consider it necessary to say anything more about Dr. Freire's inoculations but for the fact that a majority of the readers of THE JOURNAL are not likely to see this report, and I dare say many will be influenced by the statistics of Dr. Freire and the enthusiastic support Dr. Gaston¹ and his son-in-law Dr. Lane,² of San Paulo, Brazil, to accept figures as evidence of the prophylactic value of Dr. Freire's inoculations.

It is hardly necessary to say that figures are not facts, although when used for statistical purposes they are supposed to represent facts. We accept Dr. Freire's figures as representing the fact that a very large number of persons in Brazil have been inoculated by himself and some of his medical friends with his cultures, but having very positive evidence that these cultures do not contain the specific germ of yellow fever, we consider the statement that his inoculations are made with the "attenuated microbe" of yellow fever to be a fancy and not a fact.

And in judging of the value of his recently published statistics we take the liberty of looking back of the figures at certain facts which were developed by our personal investigation in the city of Rio; but before referring to these we desire to call attention to a fact stated by Dr. Freire himself, which for us is of prime importance. In Dr. Gaston's translation we read: "There were inoculated in Rio de Janeiro 1,183 persons under the conditions mentioned, and of these the deaths should have been at least 591. Behold! Only 18 died.

On page 16 of his latest publication³ Dr. Freire gives the names of twenty-one persons among the vaccinated during the year who died of yellow fever, viz.: "Eleven strangers and ten Brazilians."

Let us, however, take the figures as given in the paper from which Dr. Gaston has translated. The proportion of deaths is $\frac{1,183}{18} = 65.72$. That is one person out of 66 of the vaccinated died of yellow fever.

Now let us see what was the ratio of mortality among the unvaccinated portion of the population. According to Dr. Freire the total number of deaths during the epidemic was 2,386, including those which occurred in the Jurajuba Hospital (800). The total population of Rio is estimated at 400,000; let us divide this by two on the supposition that one-half of the population is protected by a previous attack or by long residence in the city. This gives us $\frac{200,000}{2,386} = 83.82$. That is, the mortality among the vaccinated was greater than among the non-vaccinated, estimating the susceptible population at one-half of the entire population of the city. And yet Dr. Freire estimates that 573 lives were spared in the city of Rio by his inoculations. This result is reached as follows:

"With a view to illustrate the efficacy of the inoculations let us record the ratio adopted by Dr. Jemle, in Senegal. He verified that among the strangers residing there from one to three years, 75 out of 100 are attacked with yellow fever and 66.6 out of 100 died. Let us make application of these proportions to our vaccinated strangers and natives, that resided in the infected district from a few days to three years."

It is by this estimate that a saving of 573 lives is made out. I am surprised that Dr. Freire has the temerity to again resort to this misuse of the statistical method, after the criticism which his statistics for the year 1884 underwent in the Imperial Academy of Medicine of Brazil. I give below a translation of an address made by a prominent physician of Rio de Janeiro, Dr. Nuno de Andrade, inspector-general of hygiene of the ports of Brazil. This was made at a meeting held on July 14, 1885, and is translated from the bulletin of the Academy.

But passing over all these incidents, the speaker proceeded to explain to the Academy Dr. Freire's singular method of arranging statistics to prove the efficacy of his preventive inoculations.

The process of manufacturing statistics discovered by Dr. Freire exceeded anything the speaker had ever deemed possible. for his statistics for Rio Janeiro in 1884 were prepared with data obtained in Senegal in 1881. What Dr. Freire proposed to ascertain was whether in 1884 the number of deaths in Rio de Janeiro, in proportion to that of the persons liable to take the yellow fever was greater or not than that of the deaths among vaccinated persons in proportion to the whole number vaccinated. With this object in view, he said: "In Senegal, in 1881, of four foreigners with less than three years' residence in this country, three had the yellow fever, and of these two died; therefore the proportion of cases of yellow fever was 75 per cent, and the mortality among the patients was 66.6 per cent. In Rio the mortality in 1884 was 35 per cent; ergo, reasoned Dr. Freire, 35 (of Rio) : 66.6 (of Senegal) :: x (of Rio) : 75 (of Senegal). In this cal-

¹ The Journal, March 22, 1890. *Facts versus Fiction Touching Yellow Fever Inoculation.*

² Letter from Brazil by "Occasional Correspondent." The Journal, July 27, 1889.

³ Statistique des vaccinations au moyen des cultures du microbe atténué de la fièvre jaune, Rio de Janeiro. 1900.

culution, whose wonderful ingenuity had greatly impressed the speaker, $x = 39.4$. "Thus" concluded Dr. Freire "in Rio de Janeiro in 1884, of every 100 persons liable to have the yellow fever, 39.4 were actually taken with it; and as the mortality was 35 per cent, represented by 654 deaths, the whole number of patients was 1873." Wishing to learn next how many persons there were in Rio, in 1884, liable to have the yellow fever, Dr. Freire established the following proportion: $39.4 : 100 :: 1873 : x$. Therefore $39.4 x = 187,300$, and $x = 4,737$. Hence Dr. Freire concludes that in 1884 there were in Rio de Janeiro only 4,737 persons liable to have the yellow fever, and that of these 654, or 13.7 per cent died, while of the 418 vaccinated there died only 7, or 1.6 per cent.

From this he infers that the result of his preventive vaccinations is really wonderful. (Page 181 of "Appendix to the Doctrine Microbienne.")

The speaker, however, preferred omitting the statistics of Senegal and making use only of those of Rio. Deducting, then, from Dr. Freire's list of vaccinated persons those who had more than three year's residence, and those residing in Vassouras and Serraria, the number of those liable to have the fever, according to the theory advanced in Dr. Freire's calculation, is reduced to three hundred and forty. Among these there were ten deaths, *i. e.* a mortality of 2.9 per cent.

The number of foreigners who arrived in Rio de Janeiro in 1880, 1881, and 1882 was 66,628, all liable, according to the aforesaid theory, to have the fever.

This number, which is taken as a basis for the calculation, said the speaker, is not exaggerated, for if it be true that many of these persons did not remain in the city, it is also true that the calculation does not include the tens of thousands of sailors on board the vessels in port, nor the persons newly arrived from the country, nor the children residing here, who are unfortunately paying a heavy tribute to the epidemic.

Very well, the 654 deaths from yellow fever among the 66,210 persons liable to take the disease (66,628—418 vaccinated by Dr. Freire) represent a mortality of 1.01 per cent, which is much smaller than the mortality among the vaccinated.

At this point the speaker said that owing to his fatigue and the lateness of the hour he would, for the time, terminate his address.

But what shall we say of the very favorable statistics from Campinas, the former residence of Dr. Gaston? Simply, I think, that the favorable results are due to the fact that *the survivors of the epidemic were inoculated*. To make a fair test the inoculations should have been made in advance of the epidemic, or at the very outset.

In that case a comparison of results among persons of equal susceptibility, and exposed in the same way would have been of scientific value. But the survivors of an epidemic have already demonstrated their slight susceptibility to the disease, and not having contracted it during the height of the epidemic what reason have we for ascribing their immunity during its decline, or after its termination, to the inoculation practiced by Dr. Freire or by his disciple Dr. Angelo Simoes, of Campinas. Some of those vaccinated did contract the disease as we learn from Dr. Simoes' letter of May 7. He says: "I think then that the portion of the population not attacked by the disease have been vaccinated; and the new cases, *which are few*, that are appearing in individuals who do not wish to avail them-

selves of this prophylactic, *without counting one or another vaccinated, who has had the disease mildly.*" (Italics by present writer).

We learn from Dr. Freire's report of a later date than this letter from Dr. Simoes, that three of those vaccinated at Campinas died.

Since Dr. Gaston has quoted from Brazilian physicians who have faith in Dr. Freire's inoculations, I may be permitted to quote from some prominent physicians of the capital who have pointed out the insufficiency of the evidence.

The following is from a letter by the president of the Central Board of Health, of the Empire, which was published in one of the daily newspapers of Rio, in April, 1886:

I am obliged to correct the statements of Dr. Domingos José Freire in his article of the 7th instant, and in so doing I shall simply narrate facts, as I consider it unnecessary to enter into a formal discussion of the question.

For the facts referred to see my report, p. 184. The letter concludes as follows:

It is my sincere desire that Dr. Freire may continue to study the preservative action of his microbial cultures in relation to the yellow fever, but that he may do so calmly and without bias, like a scientific man, as did Edward Jenner in regard to vaccine matter as a preservative from small pox.

Let him avail himself of the labors of his professional brethren, and let him select assistants qualified to elevate his theories in the opinion of the public and profession instead of recruiting them among speculators and frequenters of tenement houses, who obtain greater numerical results by making victims and not disciples.

Let him again attend the meetings of the Academy of Medicine, where he has always been listened to with interest, and let him there recount his triumphs without showing offense if some colleague happens to differ from him. He should remember that science has always had its martyrs, but that these in compensation have been glorified by history.

Let him not be deceived by the praise bestowed on him in the press by persons who for purposes of their own make use of his name.

There have already been recorded many cases of deaths among persons inoculated with the microbial liquid, including the members of a respectable family vaccinated a year ago in Catumbý. One member of this family died of a pernicious lymphatitis a few days after vaccination, and another of yellow fever a little over two months ago. Every one else in the house had the yellow fever, although vaccinated. The person who fared best, having only a mild attack, was one who was absent when Dr. Freire invaded the house and performed the vaccinations without the previous consent of the head of the family.

The mortality among those vaccinated by Dr. Freire in 1884 was even greater in proportion to the number vaccinated than during the past year. He, himself, admitted seven deaths, and also confesses that "during the epidemic season a great number of the vaccinated were attacked with the malady."

But the list of deaths has been added to considerably by some of his medical confrères in Rio de Janeiro. The following is from Dr. Araujo Goes, a member of the Central Board of Health, and a gentleman whose statements are worthy of the fullest confidence:

My letter to the Imperial Academy of Medicine having been published it now behooves me to publish the statistics relating to the vaccinations on Morro da Viuva.

One fact seems to me to be definitely demonstrated, that is the worthlessness of Dr. Freire's vaccination, as is well known to the medical profession of this city.

A year ago I wrote the following:

"The want of skill which he displayed in his first experiments, the false conclusions which he has drawn therefrom, and the thoughtless precipitation with which he has hastened to make known incomplete results without accompanying them with a single qualifying remark, vitiate all the methods to which he may hereafter resort to corroborate his statements." (*Jornal do Commercio*, April 20, 1883).

The mortality among the persons vaccinated on Morro da Viuva furnishes one more proof that I was right in saying this, as I now proceed to demonstrate.

There were vaccinated in this district sixty persons, sixteen removed shortly after the commencement of the epidemic and forty-four remained exposed to its influence; of these twenty-two had the yellow fever, nine of whom died."

I am obliged to judge of Dr. Freire's statistics for the past year in the light of the facts developed by my personal investigations in Rio with reference to his inoculations practiced prior to my visit to that city in 1887; and those members of the profession who are disposed to accord some value to his published figures, are respectfully referred to that portion of my report in which I have analyzed his statistics for 1884, 1885, and 1886.⁴ My conclusion is stated in the report referred to as follows: "Our analysis leads us to the conclusion that there is no satisfactory evidence that Dr. Freire's inoculations have any prophylactic value."⁵

MEDICAL PROGRESS.

TREATMENT OF SCIATICA AND OTHER NEURALGIAS.—MORDHORST (*Therapeutische Monatshefte*, June, 1890), states that the diagnosis of sciatica is not always easy, and that inflammatory thickening of the rectus femoris and rostrus externus may be mistaken for this condition. It may also be confounded with rheumatic affections of the trochanter major and the muscles covering the hip-joint, especially the tensor vagina femoris, in the tendon of which may be found small masses varying in size from a lentil to a bean. These may be mistaken for true punctata dolorosa, as they are painful upon pressure. In many of these cases the writer has found an excess of free uric acid in the urine, and so concludes that these masses are urates deposited in the tissues.

With these few remarks on diagnosis the author takes up his special methods of treating sciatica, which he has employed for the past four years, and for which he claims the best results. In cases of neuritis—most of these cases belong to that

class—it is well to begin with a hot bath of from fifteen minutes to one hour's duration, followed by rest in bed of at least one hour, after which electric massage is to be used after the author's method. This consists of the application of the cathodal electrode having a surface area of at least 100 square cm. to the sciatic notch, while a revolving cylinder connected with the anode is passed down the limb along the course of the nerves. Deep pressure is made when the electrode is drawn downward, but it should only touch the skin lightly when returned, to prevent a break in the current. The author says that stronger currents (from 5 to 10 milliampères) can be used in this way, with a corresponding rapid absorption of inflammatory exudate.

Of thirty-six cases of sciatica treated in this way thirty recovered and six were improved. One case was cured in eight days, but the average length of treatment was from three to six weeks. Of thirteen other neuralgias, ten were cured and three improved.

ABSCESS OF THE BRAIN—RECOVERY.—DR. HANS SCHMID presented to the German Surgical Congress (*Internat. Klin. Rundschau*) a patient, who five months before had received a blow on the head with a beer-glass. At first he was comatose, but no further symptoms developed, and the wound healed in the course of a month with the exception of a small fistula. Six weeks after the injury the patient had an epileptic fit. These became more frequent, he lost flesh, and was sent to the asylum. There he sat anxiously in a corner, dreading every noise and movement, lest they precipitate an attack. The seizures were distinctly epileptic in character, and were preceded by an aura and cramps that began in the right lower extremity. On examination the patient presented a fine fistula in the region where the blow had been received; here a trephine was applied, and a portion of the skull was removed; this opened into an abscess containing 4 or 5 drachms of pus. Convalescence was rapid and full recovery reached with complete cessation of the epileptic attacks.

LYSOL, A NEW ANTISEPTIC.—DR. V. GERLACH presented to the Vienna Medical Society (*Inter. Klin. Rundschau*, June 15, 1890) a new antiseptic and disinfectant. It belongs to the class of coal tar derivatives, is free from carbolic acid, its most important constituent being kresole. Lysol has more antiseptic power than either carbolic acid or creolin, and is not so poisonous. It has a constant chemical formula. It is cheap and abundant. Lysol is not only to be used in closets and to clean linen, but it is especially useful in medicine, as it is almost free from toxic properties. As an antiseptic for wounds it should be used in a strength of 1 per cent.; for washing out the uterus, etc., $\frac{1}{2}$ per cent.

⁴ Annual Report, Marine-Hospital Service, 1889, pp. 189-213.
⁵ Op. cit. p. 213.

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SATURDAY, JULY 26, 1890.

IMPORTANT MEDICAL LEGISLATION.

The Medical Society of the State of New York is to be congratulated upon the success which, after seven years of heroic effort, it has achieved in the advancement of medical education. To this organization more than to all other agencies or influences, the profession is indebted for the results that have been secured. In view of the action which has been taken by the House of Representatives it did seem for a time as though in the Empire State, where last of all we should anticipate defeat, the hands were to be turned back upon the dial of medical progress, and that in the long-drawn struggle illiteracy, joined hand-in-hand with selfish greed, was yet again to triumph. But at last the better counsels have prevailed and congratulations are in order.

The opposition to the present law, we regret to say, was not confined to sectarian schools alone, nor to such influences as charlatans could wield—but we think, unfortunately for them, some of our medical educators who should have been conspicuous in their efforts to secure the passage of the bill, are numbered with the opposition; seemingly from the fact that as the result of its beneficent working the patronage of their schools would be diminished—as it surely should and will be.

The law approved by the Governor on June 4, 1890, will mark a new era not only in New York but incidentally in the entire country. It cannot be said that in this contest, where every point has been fought out inch by inch, there is evidence of hasty and inconsiderate legislation.

The utterances of this bill are like decisions of the Supreme Court, from which there should be no appeal.

In the next number of THE JOURNAL we propose to present the bill entire, and we commend it to the careful consideration of our readers. As the result of such consideration the first cardinal point which occurs to us is this: that the State presumes to reaffirm and to emphasize the fact that it alone has jurisdiction over the practice of medicine within its own limits. It may not only determine as to who may practice medicine, but it also presumes to assert what the qualifications of its practitioners shall be. In the exercise of this power it recognizes the responsibilities which it assumes, and seeks to make the best provision. In the second place, it proposes to redeem the profession from illiteracy by the requirement of a satisfactory preliminary education as a condition to an entrance upon the study of medicine. In the third place, it provides for a definite and uniform standard of examinations, and each and every student must attain to that standard as a condition to graduation. In the fourth place, it divorces medical teaching from the licensing power. To this end the examining boards are under the supervision of special examiners, who are appointed by the regents, and who themselves cannot be members of those boards. And, finally, it compels the colleges to teach their students three years, instead of two.

We have, then, in this single bill, the requirements of preliminary education; a definite standard for examinations; a separation of teaching from the licensing power; and a three years' college course. Thus grandly has the State redeemed itself from what had threatened her, as a sad misfortune. It may be objected that among the provisions of this bill there has been an unwise recognition of sectarian schools. A careful study of the law gives evidence that there is one common power behind the separate boards, and that while they officiate as agents the power of decision rests alone in the Board of Regents. If this board shall perform its duties wisely and well, as we sincerely hope and anticipate, the State of New York will have little cause to fear from the illegitimate practice of medicine so long as the law shall remain in force. Besides, we are confident that a death-blow to sectarian medicine is never so wisely dealt, nor so sure of fatal result,

as when by law all medical students must attain to a high standard of education, and by that standard *stand or fall*.

MEDICAL EDUCATION IN ENGLAND.

The General Medical Council—the licensing and registering body for the United Kingdom—has been considering the question of an increase in the time devoted to a medical education. Hitherto the requirement has been a four years' graded course, including, as fundamental studies, the elements of chemistry, botany, physics and zoölogy. In the debate it was stated by SIR JOHN BANKS that in every other country in the world the medical curriculum lasted at least five years—a statement which, unfortunately, some persons in this country know not to be absolutely accurate. The proposition that the course of study should occupy five years was unanimously adopted, with the qualification, however, that satisfactory proof that the student had acquired the necessary knowledge of chemistry, physics and biology elsewhere should be accepted as equivalent to the first year of professional study. The fifth year, according to the proposed plan, is to be devoted to hospital or dispensary work. Six months of it, however, may be spent under the tuition of a practitioner holding a public appointment, or possessing such opportunities of imparting medical knowledge as may be satisfactory to the medical authorities. In order that the student may be able to give undivided attention to practical work during the last year, it is recommended that all examinations except those in the subjects of medicine, surgery and obstetrics should be completed before the commencement of that year. The preliminary examination includes English, Latin, arithmetic, algebra as far as simple equations, and three books of geometry.

With regard to the manner of imparting instruction, the importance of practical work is emphasized, and it is recommended that not more than three systematic lectures a week should be given in any one course, and that no student should be required to attend more than three lectures a day.

The Medical Council makes these propositions in the form of recommendations, although it has practically the power to make them obligatory. Probably the power will be exercised before long,

if the recommendation does not prove sufficient.

Will any one assert that these requirements are *unreasonably high*? Will any one pretend that if such were the standard in this country there would be any insufficiency in the number of physicians graduated, or that their quality would not be greatly improved? Will any one even seriously maintain that it is possible for a man to be a thoroughly competent practitioner of medicine without as much knowledge and experience as are implied in them? No one, of course, will deny that many of those who graduate with a much inferior professional equipment will, in the end, make good physicians—better, even, than many who comply with these requirements. Some will continue their studies after graduation in schools or hospitals, and make up, by their own conscientiousness, for the lack of conscience in those who ought to be the guardians of professional honor and the public health. Too many will, in the long run, acquire at the expense of their patients the knowledge which they ought to have had before they undertook to treat them. Graefe is sometimes credited with the saying that he spoiled a hatful of eyes before he learned to operate for cataract. Such a record may be pardoned to a pioneer in a hitherto unexplored field, but not when the road has already been made broad and plain by the labors of predecessors.

Who are interested in maintaining the present scandalous condition of medical education in this country? Not the great body of the profession, who, whatever may be their own qualifications, can only be injured by the competition of the hordes of half-taught men who are annually poured out by our medical schools. Not the conscientious students of medicine; they are bound in some way to supply the deficiencies of the curriculum, probably at greater trouble and expense than if the extra work they do were part of the required course. Certainly not the public at large. It may even be doubted if the aggregate profits of the medical schools are any larger than they would be with a longer course of study, as it is, to say the least, doubtful if the falling off in the number of students would not be more than compensated by the increased cost to each one. Probably most of those pecuniarily interested would be willing to make the change, if their competitors would do the same. Under the circumstances it seems rather a misfortune that we

have not a General Medical Council or a Minister of Education, or some other central authority, to impose on all what all see would be for the general good.

THE KOLA NUT OF AFRICA.

It has been announced that the Commissary Department of the German Army has been authorized to purchase thirty tons of the kola nut of the Western Soudan. It will be experimented with as an accessory food, to replace to some extent the ration of coffee and other caffeine-bearing substances. According to DR. HACKETT caffeine is not the only active principle in the kola, since he has found in it a red substance to which the name "kolaine" has been given. Other observers, among them GERMAIN SÉE, have asserted that caffeine is the sole energetic principle. The kolaine is said to differ from caffeine in having the property of controlling the waste of tissue during fatiguing exercise, while the latter, caffeine, is a muscle-stimulant. The most conflicting testimony given us by European experimenters with kola will not surprise us, when we bear in mind that, even in the Soudan, the home of the kola-tree, the natives who have been using it for many generations, ascribe very diverse properties to the nut. For example, in the cases of some it will produce sleep, while others will be kept wide awake by it; in some it assuages thirst while in others it has the opposite effect, and so too in regard to the supporting power of the nut under fatigue and muscular effort, the effects are described as being very far from uniform. The "personal equation," for one thing, has a most influential bearing in the study of this, to us, new drug, not only in regard to its alleged tonic and stimulant properties to the nervous system, but also to its employment as an accessory food during convalescence and physical exhaustion. The seeds of the *Sterculia acuminata*, the so-called kola nut, are found in the market mixed with considerable quantities, or proportions, of the seeds of *garcina kola* and *sterculia cordifolia*, which are declared to be relatively inert in regard to caffeine, and probably also in regard to kolaine. Here, also, we find an additional possible source for the discrepant results of different experimenters.

EDITORIAL NOTES.

A CHAIR OF THE HISTORY OF MEDICINE.—Referring to the fact that such a chair had been founded in the University School of Baltimore and that Dr. A. B. Lyman had been appointed the first professor. The *Lancet* raises the pertinent inquiry why a similar chair should not be established in the various universities in Europe.

THE SHATTUCK LECTURES.—These lectures were founded by the late Dr. Geo. B. Shattuck, of Boston. The first was delivered on June 10, before the Massachusetts Medical Society at its one hundred and ninth anniversary meeting.

QUACKERY IN ITALY.—Some of the methods adopted for the suppression of quackery in Italy might with great propriety be adopted in this country. It is found that in many of the prefects, dentists are not confining themselves to their own art, but are vending medicines, plasters and ointments which, as they assert, "are good for all kinds of diseases," thus infringing upon the prerogative of medical men. The prefects are directed by the Minister of the Interior to use every legal means for suppressing "not only the wrongful exercise of the healing profession generally, but more especially the pompous display of such illegal practices in public places," and the Mayors of Communes are instructed to "forbid such practitioners from occupying public spaces."

A MERITED RECOGNITION.—At the forty-seventh annual Commencement of the Fort Wayne College the degree of LL.D. was conferred upon Prof. W. W. Dawson, M.D., of Cincinnati. This is a timely and just tribute to Dr. Dawson, to whom the medical profession two years ago accorded its highest honor by electing him to the Presidency of the American Medical Association. It is the more complimentary from the fact that only three times in the history of that institution has this degree been conferred.

MEDICO-CHIRURGICAL COLLEGE OF PHILADELPHIA.—W. C. Hollopeter, M.D., has been elected Lecturer on Diseases of Children; and Ernest B. Sangree, M.D., Director of the Histological Laboratory.

BELGIAN QUACKS IMPRISONED.—In Nivelles, Belgium, two quacks, named Vaudevoir and Détre, have been sentenced to six months' imprisonment. Vaudevoir prescribed for patients and

made diagnoses while simulating hypnotic sleep. It was not necessary for patients to come in person, as equally good results were obtained if a piece of soiled linen that had been worn next to the person, was sent. By this method a patient suffering from an anal fistula was treated for a bronchial catarrh. Dr. Garlier, a physician associated with these swindlers, will soon be brought to trial.

THE ONTARIO MEDICAL ASSOCIATION.—This large and growing society held its tenth annual convention at Toronto, on June 11, 12. There were present 244 members, out of a total membership of 653; to this number has the Association grown since 1881, when its organization was effected with only 132 names upon its roll. Dr. Wm. Goodell, of Philadelphia, had been announced to deliver the principal address on the 11th ult., but was unfortunately prevented from attending. There was present, however, Dr. T. Addis Emmet, the veteran gynecologist of New York, who addressed the meeting with an interesting surgical discourse. Dr. Andrew H. Smith, of New York, was also one of the chief attractions of the gathering. He addressed the society on empyema and the mechanical results that ensue upon opening the thorax; his paper was illustrated by apparatus and was followed with closest attention. Other papers, with discussions, filled up the time of the general meeting and some special subjects were disposed of at the meetings of the Sections, the formation of which has been rendered necessary by the increasing volume of the scientific material prepared for the convention.

The following officers were elected for the ensuing year: President, Dr. W. H. Moorhouse, of London; Vice-President, Dr. Charles Sheard, of Toronto; Secretary, Dr. J. Gibb Wishart, of Toronto; Treasurer, Dr. E. J. Barrick. Among those who were elected to honorary fellowship in the Association, were Dr. E. M. Moore, of Rochester, and Dr. T. Addis Emmet, of New York.

THE SHEPARD HOSPITAL FOR THE INSANE.—The late Mr. Shepard, of Baltimore, left \$560,000 to found an asylum for the insane, instructing his executors to use the interest only. This was thirty years ago, and the building has been slowly going on until now when the work is

nearly finished. The buildings are worth \$880,000, while the estate has increased in value to \$583,637. The Shepard Asylum is one of the best endowed institutions of the kind in the country.

THE NORTH DAKOTA MEDICAL ASSOCIATION.—This new Association was organized at Jamestown, N. D., on May 27. Dr. H. W. Coe, of Mandan, was elected President; Dr. M. F. Merchant, of Ellendale, Vice-President; Dr. George McIntire, of Hillsboro, Secretary; and A. P. Rounsevell, of Larimore, Treasurer. The next annual session will be held May 25, 1891, at Fargo.

THE SOUTH DAKOTA MEDICAL ASSOCIATION has also been organized and officers elected as follows: Dr. J. W. Freeman, Central City, President; Dr. A. C. Warne, Mitchell, Secretary; and J. C. Morgan, Sioux Falls, Treasurer.

THE NEW YORK MEDICAL REGISTER FOR 1890.—This valuable little annual handbook has just appeared. It contains the registrable data of the 7,635 regular physicians who reside in New York, New Jersey and Connecticut, besides much information regarding pharmacists, nurses, periodicals and books, hospitals, colleges, societies and local laws for those three States. This is the twenty-eighth volume of the series. A copy of the book should be in every reference library in the country. It is published by the Putnam of New York City.

DR. JOHN A. WYETH, the eminent New York surgeon, will deliver the Address before the Mississippi Valley Medical Association, at Louisville, Ky., October 8. Quite a number of gentlemen prominent in medicine in the Mississippi Valley have signified their intention of being present and reading papers. The outlook for the meeting is very encouraging.

ITALIAN STUDENTS IN GERMANY.—Each year the number of Italian students attending the German Universities is increasing. In 1885, the number was 189; in 1886, 224; in 1887, 310; in 1888, 390; and in 1889, 535. Italy, so long the centre of culture and of refinement, is again fast advancing to a foremost position in the medical world, and the glories that were historic give promise in their renewal of still greater achievement in the days to come.

TOPICS OF THE WEEK.

ARABIAN SCIENCE AND LITERATURE.

There is no new thing under the sun; and the same eager curiosity which is felt in the nineteenth century concerning medical and other sciences, together with the thirst for literature, animated no less the men of remote nations and of other minds. This age, proud of its knowledge and inventions, is prone to forget how much it owes to the past and to the labors of others, who sowed that we might reap. To no people are we more indebted for the powerful impetus which was given to science and literature toward the close of the Middle Ages, than to the Saracens, whose intellectual and mechanical genius became a sort of bridge between ancient and modern civilization.

When the Arabians were aroused from their mental torpor by Mohammed, their zeal first took the form of warlike enterprises; but as the passion for conquest died away, all the energy of their keen and searching intellects was directed to the acquisition of knowledge. "Masters," says Sismondi, "of a great portion of the East; of the country of the Magi and the Chaldeans, whence the first light of knowledge had shone over the world; of the fertile Egypt, the storehouse of humane science; of Asia Minor, that smiling land, where poetry and taste and the fine arts had their birth; and of the burning plains of Africa, the country of impetuous eloquence and subtle intellect; the Arabians seemed to unite in themselves the advantages of all the nations which they had thus subjugated."

At a period when the rest of Europe was buried in bookless ignorance, the lamp of learning shed a fair, clear light over Mohammedan Spain, the principal seat of Arabian culture. Seventy public libraries were opened, and at Seville in 1000 A. D. was built the Giralda, the first astronomical observatory on record, and which, after the expulsion of the Arabs from Spain, was converted into a bell-tower for the cathedral.

During the Middle Ages, the Christian populations of Europe seem to have made but little progress either in the theory or practice of medicine. Among the primitive Spaniards, when any one was ailing he came and sat in a public place, and all his friends and acquaintances who passed by brought him such remedies as they fancied might prove beneficial—traces of which custom may still be discerned in America, as every physician knows to his sorrow. It was reserved for their Saracen conquerors to establish the first regular schools of the therapeutic science, where the works of Hippocrates and Galen were translated from the Greek and Latin, and adopted as the basis of instruction.

Toward the end of the tenth century, the great medical treatise by Ali-Ebn-Abbas appeared. It was entitled *El-Melekei*, or "The Royal," and was an enlargement and appendix to the Galenic teaching. Soon after Er-Razi, a professor of the Bagdad medical school, published his writings on pathology, containing the first authentic description of exanthematous diseases. Every other work in the Arab schools yielded precedence to the

Canon and Materia Medica of Avicenna, who was born 980 A. D., and received the title of Prince of Physicians. The Canon was divided into five books; the first and second treat of physiology, pathology, and hygiene; the third and fourth deal with the methods of treating disease; while the fifth describes the composition and preparation of remedies.

It was the Arab surgeons who invented the probang, and improved the lancet and couching needle; though in surgical and anatomical knowledge they made but little advancement, in consequence of their Islam prejudices which forbade dissection, while the Koran denounced as unclean the person who touched a dead body. Though chemistry had its rise among the Arabians, it never became a separate science, but, like botany, was studied chiefly as an auxiliary to medicine. The most important mercurial and arsenical preparations of the materia medica, the sulphates of several metals, the properties of acids and alkalies, the distillation of alcohol, were all known to the Arabs. Many terms borrowed from their language, together with the signs of drugs, are still in use among modern apothecaries.

Astronomy attracted much attention among the Arabians, and in the reign of Al-Mamoun, A.D. 813-833, great progress was made in that science. They also acquired much renown in mathematics. It was by means of Arabic translations that Euclid and Apollonius were introduced into Europe. Algebra, decimal arithmetic and numerals we owe to them, while their canals, water-works, sluices, reservoirs and the like attest their knowledge of hydraulics. They knew how to apply the rules of chemistry to all the necessary arts of life, and no European nation has ever surpassed the Arabians of Spain in agricultural prosperity.

Many inventions whose benefit to civilization is inestimable are due to these sons of the desert. From all antiquity the Chinese had made paper of silk, and this knowledge had extended to Samarcand. When that city fell into the hands of the all conquering Arabs, Joseph Amron carried the process to Mecca, his native city, and about 706 A. D. began to make paper from cotton. This invention spread through the length and breadth of the Mohammedan empire, and in Spain beautiful paper was manufactured from flax in the twelfth century. A century before gun-powder was known in Europe, the Arabians were familiar with it and its uses, an invention which has since wrought a complete change in the modes of warfare that had prevailed for ages. The compass was an Arabic invention, and was commonly used in Nubia as early as the twelfth century.¹

In the interests of botany and mineralogy, scholars spent their lives in travel and laborious research. Schools, colleges, academies and libraries sprang up under the generous patronage of the caliphs. During the reign of the noble Haroun-Al-Raschid and his illustrious son a school was attached to every mosque, and, as in New England under the sway of the Puritans, religion and education went hand in hand.

Philosophy, history, poetry, theology, grammar and

¹ This invention is claimed by the Chinese and by the Italians.

theatric were assiduously cultivated, and historical dictionaries were invented. The Oriental mind took special delight in story telling, and we can form some idea of the splendor of the Arab imagination from the Arabian Nights' Entertainments, which give pleasure to old and young.

. It was doubtless a great surprise to the old Crusaders when they found the abhorred Mussulmans superior to themselves in polish, culture and scientific attainments. Though the verdict of later ages has condemned the religious enthusiasm which sent the chivalry of Europe over land and sea to rescue Palestine from the Saracen, their labor was not all in vain; for among them were men of noble, elevated minds, who were capable of receiving and assimilating truth and knowledge from whatever source it came, and when they returned to their own lands they carried with them precious seeds, which in the fulness of time were to bear such mighty fruit in the Revival of Learning, the Renaissance, the Reformation, and the blessings of civil and political liberty.—Stoddard, in *Classics*.—*Pacific Record*.

HONOR TO JOHN HOWARD.

At the great Congress for Prison Reform just concluded at St. Petersburg, one of the most successful sittings was the second, at which the distinguished crown lawyer, M. Spassowitsch, delivered an address on the two philanthropists of the eighteenth century—John Howard and the Italian Beccaria, both of them beneficent innovators in the treatment of the criminal classes. The address, from the interest of its subject and the reputation of M. Spassowitsch as one of the most brilliant orators of the Russian bar, attracted a numerous audience, which included many of the leading figures in St. Petersburg society. Referring to the fact that one hundred years ago John Howard closed the beautiful pilgrimage of his life on Russian soil, and left all that was mortal of him in the neighborhood of Cherson, M. Spassowitsch drew a striking picture of the philanthropist's last resting-place, on which stand a sun-dial and tablet, the latter bearing in Latin the touching inscription: "Whoever thou mayest be, thou standest at the grave of thy friend." Then followed a vivid sketch of Howard's career, with all its incidents; often romantic, ever redounding to his honor; and finally, a comparison of the reforms he initiated and brought to completion with those protected, in part successfully, by the Italian jurist Beccaria. The concluding words of the address were these: "I fain would have contented myself with pronouncing the name of this one philanthropist only, the English Howard, but I was unable to do so, for ever in my thoughts live the two benefactors of mankind, who are inseparable. Honor and fame be rendered to the glorious pair, the authors of the criminal reform of the eighteenth century, John Howard and Beccaria. Honor and fame to the people whose virtues are personified in them, the Saxon and the Latin. Honor and fame to the nations from which they have sprung. Long live England; long live Italy!" The rounds of applause with which these words were received attested how fully they

had interpreted the unanimous feeling of the Congress; and in the evening at the state banquet, at which the chief authorities of Russia, civil and military, were represented, toasts were given and acknowledged in the spirit which, earlier in the day, had found such genial expression in the address of M. Spassowitsch.—*Lancel*.

VITAL STATISTICS IN FRANCE AND GERMANY.

The following figures drawn from the publications of the German Imperial Statistical Office and the French *Journal Officiel*, respectively, are interesting as showing that if Napoleon's saying that "Providence is always on the side of the big battalions" is true, France will have little chance in any future struggle with Germany if the gospel according to Malthus continues to be accepted by her people as the whole duty of married man. In 1888 there were in the German Empire 376,654 marriages, 1,828,379 births and 1,209,793 deaths, the excess of births over deaths being 618,581, as against 605,155 in 1887. In France in the same year there were 276,848 marriages, 882,639 births, and 837,867 deaths, the excess of births over deaths being only 44,772, as compared with 56,536 in 1887. In Germany the marriages in 1888 exceeded those of 1887 by 5,995, and those of 1886 by 4,328; in France, on the other hand, there were fewer marriages in 1888 than in 1886 by 6,360. In Germany the birth-rate has been steadily rising since 1884, the increase in 1888 as compared with 1887 having been 2,818, and 78,505 as compared with 1883. In France there was a falling off in the number of births to the extent of 16,794 as compared with 1887, and the number was the lowest recorded since 1871. Since 1884 the birth-rate has been gradually falling, the difference between that year and 1888 being about 55,000. In round numbers the birth-rate in Germany is 38.1 and in France 23.1 per 1,000 inhabitants, while the excess of births over deaths is 12.9 per mille in the former, as against 1.1 per mille in the latter. Of the 87 departments in France, in only 44 was the number of births greater than the number of deaths; in the remaining 43 there were more deaths than births.

INTERNATIONAL MEDICAL CONGRESS.

In connection with the exhibition during the Congress at Berlin, the Imperial Board of Health is engaged in forming a special department for the illustration of medical and sanitary appliances. It is hoped that the various hygienic institutes and laboratories, as well as instrument makers and others, will largely contribute to the exhibits. The larger German towns will also probably show plans, etc., of the sanitation works carried out within them. All communications connected with this exhibition should be addressed to the Exhibition Committee, Karlstrasse, 19, Berlin, as soon as possible. At the request of the organizing committee of the Congress the following gentlemen have consented to form a Scottish committee in order to facilitate arrangements as regards Scottish members of the Congress: Mr. Joseph Bell, Mr. G. A. Berry, Mr. John Duncan, Professor T. R. Fraser, Professor W. T. Gairdner, Dr. G. A. Gibson, Dr. P. M'Bride, Sir George Macleod, Dr. Peel Ritchie, Professor A. R. Simpson, Professor Grainger Stewart, Dr. Tuke, and Sir William Turner. Professor Grainger Batty Stewart has been invited to accept the office of president of the committee.—*Lancel*.

PRACTICAL NOTES.

A HINT FOR FACILITATING THE MICROSCOPICAL EXAMINATION OF URINE.

When attempting to examine urine under the microscope, for casts, epithelial cells, and other organic bodies, a good deal of annoyance and difficulty is sometimes caused by urates, and also, when the specimen is not quite fresh, by fermentation and putrefactive products. In order to obviate this difficulty, and with the further view of preserving the specimen, Dr. M. Wendringer advises that the urine should be mixed with a nearly saturated solution of borax and boracic acid. This dissolves the urates, and keeps the urine from fermenting, and at the same time exercises no destructive effects upon the casts and epithelial elements which it is desired to examine. The solution is prepared by mixing twelve parts of powdered borax in one hundred parts of hot water, and then adding a similar quantity of boracic acid, stirring the mixture well. It is filtered while hot. On long standing, a small deposit crystallizes out, but clings to the side of the vessel, so that it does not interfere with the transparency of the liquid. The urine to be examined is put into a conical glass, and from a fifth to a third of its bulk of the boracic solution added to and agitated with it. The urine will be found to have become clear in a short time, *i. e.*, if there is no cloudiness due to bacteria; and it will remain unchanged for several days. If it is only wanted to clear the urine and to make it keep for a day or two, the addition of a smaller quantity of the boracic solution is sufficient. If a third of its bulk is added, no fermentation or putrefactive processes take place, even if the glass is left uncovered in warm places. Albumen, too, if it exists, is not coagulated. The organic elements—as epithelial cells, casts, blood corpuscles, etc., collect so quickly, without undergoing any morphological change, at the bottom of the glass, that the first drop taken up by the pipette, usually proves a satisfactory specimen.—*Lancet*.

DEATH FOLLOWING A URETHRAL INJECTION OF COCAINE.

Simes, in a recent number of the *Gaz. degli Ospitali*, records a somewhat remarkable case of death occurring after an injection of cocaine into the urethra. The patient was a man of 28 years of age, and preparatory to undergoing the operation of internal urethrotomy, had a gram of a 20 per cent. solution of cocaine injected into his urethra. Saving his urethral stricture the patient was in excellent health. Immediately after the injection the following phenomena supervened, namely, contraction of the muscles of the face, dilatation of the pupils, stoppage of the

breathing, and violent epileptiform convulsions. The convulsive signs continued to increase in severity, the respiration became more and more feeble, cyanosis became intense, and at the end of about twenty minutes, despite every care, the patient died. At the autopsy the lungs were normal, but extremely congested; the left ventricle contained no blood.—*The Medical Press*.

THE TREATMENT OF FLATULENT DYSPEPSIA.

In *Les Nouveaux Remèdes*, April 8, 1890, Dr. Huchard publishes a number of formulæ, which are claimed to be of value in the treatment of dyspepsia, especially with a view of preventing the development of flatulence. Among the remedies which the author has found most satisfactory, chloroform is the best. On account of its irritant action it should not be given in a state of purity or in capsules, as is so frequently done. The best mixture is claimed to be its administration in saturated chloroform water:

R. Saturated chloroform water, 150 parts;
Distilled water, 120 parts;
Mint-water, 30 parts.

Of this mixture a tablespoonful may be taken either immediately before or during a meal.

The same dose may also be taken of the following formula:

R. Saturated chloroform water, 140 parts;
Orange-flower water, 150 parts;
Tincture star anise (*Illicium anisatum*), 10 parts.

In the following preparation the chloroform is associated with gastric stimulants:

R. Tincture of gentian,
Tincture of anise,
Tincture of nux vomica, ãã 3j;
Chloroform-water, ... 20 to 40 drops.

After filtration, 10 to 20 drops of the above may be taken in a little water a quarter of an hour before eating.

When it is desired to employ the so-called absorbing powders the following formulæ may be prescribed:

R. Powdered charcoal 3ij;
Sodium bicarbonate 5j½;
Calcined magnesias 5j;
Powdered colombo 5ss.

Make 40 powders. One powder may be taken half an hour or an hour before, or, if an antiseptic action is desired, at the time of, eating:

R. Beta-naphthol,
Salicylate of bismuth,
Magnesia, ãã gr. xlv.

Make 30 powders, which may be administered as above.—*Therapeutic Gazette*.

OBSTRUCTION OF THE NOSE.

In treating obstruction of the nose, quinine and belladonna or cocaine will relieve the congestion; the patient also should snuff up the nose a mixture of camphor and boric acid; a cold bath to be taken each morning, to prevent taking cold.—*Coll. and Clin. Record*.

SOCIETY PROCEEDINGS.

Medical Society of the District of Columbia.

Stated Meeting, December 18, 1889.

THE PRESIDENT, DR. CHARLES E. HAGNER, IN THE CHAIR.

DR. SWAN M. BURNETT presented a patient with *Tuberculosis of the Conjunctivæ*.

DR. C. W. RICHARDSON presented a patient showing a *Double Uvula*, and also read a paper on

ADENOID GROWTHS IN THE NASO-PHARYNX.

I offer no other excuse for bringing this subject to your consideration than its importance, which causes it to merit a thorough and exhaustive treatment at your hands.

Considering the lymphatic system of the pharynx as consisting of a continuous chain, presenting here and there aggregations forming the so-called tonsils, one would expect that changes incident to the one mass would be manifested also in the others. This has been acknowledged. These masses, or aggregations of lymphatic tissue, are variously designated lingual, faucial and pharyngeal tonsils. To-night we shall deal with the upper arch of the circle, the pharyngeal tonsil, which, when subjected to certain pathological changes, is known as "adenoid growths." These glands may be affected, I do not doubt, with many of the acute inflammatory changes to which its fellows, the faucial tonsils, are prone. According to Knight, Delavan and others, acute inflammation attended with marked enlargement of these glands has given rise to alarming symptoms; seeming errors in diagnosis have also resulted from these acute enlargements. In this article we have not to do with these acute hypertrophies (enlargements), but rather with that chronic—the result of frequent attacks of the acute form—or congenital condition coexisting almost with the birth of the individual. These growths do not make themselves manifest in any unpleasant manner until about the third year, although cases sufficiently urgent to require operative interference have been met with as early as the ninth month of life. They are said, like the other glandular tissues of the same group, to undergo atrophy about the age of puberty. This is true to a great extent, yet it must be accepted only in a relative degree.

These glands, when diseased and subjected to enlargement, vary greatly in number, size, density and position. Their density depends upon the amount of connective tissue present. Where glandular tissue is in excess, they are soft, friable, and readily break down under the finger. Should connective tissue predominate, they are dense, tough, and can only be torn away by the use of considerable force. They may vary only slightly

from the normal, or may completely fill out the naso-pharyngeal cavity. They may form a curtain-like mass extending transversely across the vault, more or less completely occluding the choanæ, or hang stalactite-like, round or clubbed-shaped at their extremities. They may form gigantic granules in the upper portion of the post-pharyngeal wall, or accumulate in masses around the orifices of the Eustachian tubes and filling out the fossæ of Rosenmüller.

The symptoms produced by the existence of this condition vary according to the amount of growth present, and the interference it causes to the performance of the physiological functions of those parts and organs dependent upon an unobstructed naso-pharyngeal cavity. A typical picture of that form of adenoid growth, causing sufficient impairment of the general health and special organs as to imperatively demand operative interference, I will attempt to delineate. You will find before you a child whose age is considerably in excess of his physical development. The facial expression is characteristic: complexion pale, face long and thin, cheeks sunken, nose pinched, eyes heavy, and a dark ring is usually observed below them, intensifying the want of color, the mouth is agap, and the lower lip, thickened and protruding, droops, thus exposing the lower teeth. As he sits, the whole countenance gives the impression of stupidity. The chest is small and contracted; examination will frequently reveal the existence of the characteristic chicken breast. When he responds to interrogations it will be noticed that his voice has a peculiar muffled, flat, dead sound, the pronunciation of the nasal consonants being entirely lost. They complain of want of energy, heaviness about head, a sense of constriction about chest, no desire to play with fellow, and of rapidly occurring fatigue when exercising. They are universally bad sleepers—in fact they never experience a night of continuous, uninterrupted, blissful repose until the growths have been removed. They toss about in bed, are extremely restless, have bad dreams, causing them to cry out in sleep, and on awakening to be greatly frightened, perspire about face and head, snore, and withal a peculiar method of respiration which is characteristic, *i. e.*, the inspiration being very much delayed after expiration, so as to cause a casual observer to fear that respiration has ceased. It is marvelous how these children, having their rest disturbed, possess the vivacity that is common to them. The information is elicited from parents or guardians that they have little inclination for study, and are consequently backward. This want of desire for study, or inability to hold the attention fixed upon any continuous thought or train of ideas, is a frequent manifestation in diseases of this character. They will read a sentence, and almost as quickly forget it; constant

repetition is indispensable to the acquisition of any information. This constant strain places the child at a great disadvantage. Finding they so readily forget, they become discouraged and throw their books aside. This condition may exist with regard to all subjects, or may affect the mind only in connection with particular ones. Prof. Guge, of Amsterdam, first called attention to this phenomenon, and to it he has given the name of *aproxesia*. Headache, fulness over the frontal sinuses, or a dull feeling about the head is always present. It will be observed, on inquiry, that the sense of smell does not exist, or is in abeyance. On testing the nasal cavities it will be found that they do not permit the passage of air, respiration being carried on solely through the buccal cavity. It will be observed, on examination with speculum, that the nasal cavities are sufficiently patulous to permit of free nasal respiration, so far as the anterior part of these chambers is concerned. When the obstruction to nasal respiration is complete, the mucous membrane is pale, of a pinkish hue, and the turbinated bodies present a condition on to atrophy rather than that of hypertrophy; but when obstruction is not absolute, the membrane is frequently congested. The faucial tonsils are frequently hypertrophied, presenting considerable enlargement, although the two conditions do not necessarily coexist. Another condition noted in the buccal cavity, dependent upon the existence of these growths, is the high arching of the hard palate. Deafness exists, more or less marked—perhaps a suppurating ear—and this condition, rather than the more distressing want of nasal respiration, has driven the parent to consult you. Salivary secretion may be, but nasal and post-nasal secretions are always in excess.

The pen picture I have just given is typical of this condition, and the symptoms those usually met with in cases where the growths exist in sufficient quantities to give rise to interference with nasal respiration.

Such a case as the one just enumerated would give rise to the inquiry as to where the obstruction existed. The nasal cavities are patulous, the oral pharyngeal cavity presents no obstruction; where can obstruction exist excepting between the two? It is only through the aid of the rhinoscopic mirror, or by digital exploration of the naso-pharyngeal cavity, that a positive diagnosis can be obtained. Some authorities depend solely upon the mirror, while others assert that no positive diagnosis can be made excepting through the aid of the index finger. I constantly employ both methods, the information obtained by the one being substantiated, strengthened and increased by the other. It is usual for me to make a rhinoscopic examination, and the evidences of the existence of the growths and their position having been obtained, then to resort to

digital exploration, in order to obtain information as to their extent and size. I never use means to hook forward the soft palate in rhinoscopy; I do not deny the possible usefulness of these agents, but think that many who resort to them could, by the exercise of the tact and patience they usually possess, soon find these artifices useless crutches. By the mirror we will observe these growths hanging like stalactites or rounded club-like masses from the pharyngeal vault, forming curtain-like masses, obstructing the view of the post-nasal orifices and filling out the inequalities in the lateral wall. It is only through the sense of touch that we are able to grasp the full idea of the extent of these growths. One must possess a well educated tactile sense, and a thorough knowledge of the topographical anatomy of the naso-pharyngeal cavity, in order to appreciate the information to be gained by this method of investigation. In making these investigations I never explain to the patient what my intentions are, unless they obstinately demand the why and wherefore. The method of procedure is as follows: Seated to the child's left, facing and slightly in front of it, the left hand being placed upon the head to give it support, he is requested to open widely the mouth. While the mouth is thus widely agap, and before they appreciate my intention, I rapidly insert the index finger of the right hand into the buccal cavity and onward to the post-pharyngeal wall, where the finger is usually arrested by the contraction of the pharynx and elevation of soft palate. This, the first and only resistance, is readily overcome by a little persistent and forced pressure. After passing constriction, the finger passes into the naso-pharyngeal cavity. Here the finger must be swept rapidly over choanæ, vault, orifices of Eustachian tubes, fossæ of Rosenmüller, and post-pharyngeal wall. The experienced finger will readily detect growths by their peculiar velvet-like feel, also likened to the sensation produced by feeling a bunch of earth-worms. These procedures must be accomplished with great rapidity, as the struggling child usually releases himself or forces you to release him in a few seconds. Unless the child under examination is remarkably tractable—I have seen several—the examination must be done thoroughly, as they will never, while retaining consciousness, permit another exploration. While these are the train of symptoms present in complete obstruction, there are cases attended with only partial obstruction, and others in which there is no obstruction to nasal respiration, although growths exist of sufficient size to give rise to annoying symptoms that can only be ameliorated by the removal of the hypertrophied glands. It is especially to this latter class of cases, and the relief of symptoms produced by them, that I wish particularly to direct your attention. This class manifest themselves by ex-

cessive nasal or post-nasal secretion, more or less impairment of the organ of audition, and a peculiar muffled sound of the voice. Secretion and excessive secretion is one of the most constant and, I might say, never failing evidence of the existence of this condition. The quantity of secretion is not always in proportion to the amount of glandular hypertrophy, nor can it be said to be in inverse ratio, although I have seen greater secretion in cases where simple knobs or protuberances existed at the vault, than where there was growth sufficient to completely occlude the post-nasal orifices. That this excess in secretion is dependent upon existence of the hypertrophied glands, and not entirely due to the catarrhal condition of the mucous membrane, and for the following reasons, viz.: There are a number of cases upon which we have employed every method usually successful in checking excessive secretion in nasal and post-nasal catarrhs, without any result whatever, where the subsequent resorting to operative interference, with removal of knobs, protuberances and existing masses of growth, have been attended with complete relief. By the restoration of many of these cases to the normal condition with operative interference alone; by the complete relief, by operative interference, of cases which have been subjected for months to a rigid course of nitrate of silver, iodine solutions, and various other agents employed in the hands of others. There also exists a class where the removal of hypertrophies, while not completely relieving the catarrhal secretion, yet lessens it to so great an extent that its complete cessation can be brought about by a little further judicious treatment. It is not necessary for me to give a long citation of cases to prove the facts mentioned above. I will mention a few while exhibiting specimens that I have brought to illustrate my paper. The importance of this condition as a factor in the production of excessive post-nasal secretion is, I regret to say, greatly overlooked. Many authorities, in writing upon this important subject, completely overlook this point, and to so great an extent as not to insist upon the necessity of complete removal of all existing growth—it is only necessary to remove as much as will give rise to free nasal respiration. Such dogmas I class as equal to those which state it is only necessary to remove a small portion of the faucial tonsils. I remove these as thoroughly and completely as I remove the faucial tonsils. There are a large number of cases under treatment, classed as post-nasal catarrh, dependent upon diverse pathological conditions, and which can not be treated intelligently or judiciously without first being subjected to a rhinoscopic or a digital examination, preferably both. It is largely due to the injudicious treatment, brought about by an imperfect knowledge of the pathological condition, that accounts for the large number of in-

curable cases of post-nasal catarrh and the equilibrium which exists with regard to the medical treatment of this condition. The importance of this can be illustrated no better than by mentioning the fact that of all children treated by me during the past twelve months in whom post-nasal catarrh existed as a prominent symptom, in over 50 per cent. there was present more or less hypertrophy of glandular tissue at vault of pharynx, removal of which, and restoration of the dome to its normal condition, was attended with the relief of all unpleasant symptoms. Disease of middle ear, catarrh, acute inflammation and suppurative inflammation are frequent concomitants of adenoid growths, and it is the existence of these conditions that frequently drives these unfortunate sufferers to our observation. Besides these cases where ear symptoms are so marked as to be observable to patients, there are others where commencing changes are only observable after careful examination. In this latter class operative interference is as imperative, in order to remove the existing cause and thus enable us to radically remove the condition, as in the former; in fact I consider operative interference a demand in all cases where adenoid growths exist, even though the ear be not involved, simply as a precautionary measure to prevent, at any subsequent period, the occurrence of an invasion of this important region.

Treatment.—As can be judged from previous remarks, there is, according to my idea, only one course to be pursued in the treatment of this condition—the complete and thorough extirpation of all hypertrophied tissue. It is unwise for one to dictate any special operative procedure, or the necessity of using any peculiarly constructed instruments, as essential in the operative treatment of these growths. In this connection, while not doubting that in some cases the index finger of certain surgeons might be capable of removing these glands, I doubt very much the index finger of any one possessing sufficient force to remove the firm fibrous growths I have observed in many of my cases. A much discussed question in this connection, and over which the most diverse opinions are held, is as to the advisability of producing general anæsthesia, and as to whether this state should be produced through the aid of ether or chloroform. Some assert that the operation is as painful as the amputation of a finger; others that it is almost painless. I consider the operation as far from being as painful as the former, or as completely devoid of pain. It is not necessary for me to give a résumé of the various instruments and operative procedures resorted to in removing these growths. I shall give you the method I usually adopt, and which I consider most expedient. I use the forceps, and they are made on the plan of the instrument devised by Löwenburg and modified by Franklin Hooper,

varying slightly in curves at cutting extremities. In regard to general anæsthesia, I accept a middle ground. Should the patient be under 10, over that age and timid, or desire the use of an anæsthetic, I always administer ether. Should the patient be over 10, and one in whom I may expect hearty coöperation, I usually operate with the aid of cocaine. In operating under general anæsthesia I adopt the upright position. The patient, being in the recumbent position, is thoroughly anæsthetized until relaxation is complete. He is then loosely bound in a sheet, head alone being free, and thus securely prevented from interfering with the operation he is placed in an upright position in the arms of an assistant. I always have the head of patient resting upon assistant's left shoulder, so that he can encircle head with corresponding arm, thus holding patient's head firm. Gag having been placed in mouth, the index finger of left hand is passed behind soft palate, where it acts not only as a guide to location of growths, but also as a palate retractor. The growths are now seized by forceps, guided by the right hand, and rapidly torn from their attachment. All having been removed, it is well to scrape over the mucous surface before removing index finger from pharyngeal cavity. The operation can be done so rapidly as to be completed before the patient has begun to be aroused from the quite profound anæsthesia. I have no fear of hæmorrhage in these cases, nor of the supposed danger of blood passing into larynx. Hæmorrhage is quite slight, and the small quantity of blood produced always passes into gullet. In this operation I always depend upon the sense of touch. In the second class of cases I simply resort to the local use of a 5 to 10 per cent. solution of cocaine. If the patient possesses sufficient fortitude and growths are not abundant, I usually finish the operation at one sitting. More frequently I resort to several sittings. In these cases I sometimes operate with, but more frequently without the aid of mirror. I call the mirror to my aid when growths are situated well forward or about mouth of Eustachian tube, a region where I am afraid of doing harm. Patients state that operation is painful, but I am sure that none find it quite as painful as they would the amputation of a finger; nevertheless, they come again, and I have never known one to fail an appointment. The after-treatment is very simple. There is nothing to do excepting the occasional spraying out of the naso-pharyngeal cavity. Before closing I must again insist upon the absolute necessity of the removal of every particle of growth present, and the complete restoration of the vault to its dome-like appearance.

DR. BRYAN said the subject of adenoid vegetation in the nasal pharynx was one that had greatly interested both the laryngologist and aurist since Meyer, of Copenhagen, first called

attention to the disease, in his original paper, by reporting 102 cases.

A fact that did not seem to be brought out in Dr. Richardson's paper is, that there are two stages of this affection: In the first stage, found in young children, the tissue is soft and friable, breaking down readily under pressure; in the second stage, which we find in later life, the tissue is hard and resisting to the touch, due to the increase of fibrous tissue. We do not speak of acute hypertrophy, for that condition is a result of chronic inflammation, and Dr. Delavan's case, which Dr. Richardson had quoted, could hardly be regarded in the light of a true hypertrophy of the tissue in the vault of the pharynx, but simply a swelling of the membrane, due to some temporary cause, and which disappeared as soon as the cause was removed. In young children the finger is a much more valuable aid to the diagnosis than the mirror; and in adults even, the mirror frequently gives us no idea of the extent of the diseased tissue, which can only be positively determined by the use of the probe.

In operating upon young children he always used ether, with the patient in the prone position, with the head depressed below the level of the shoulders. In this way there is no possible danger of blood, or excessive faucial secretions, getting into the trachea. When the patient is old enough, the operation is best done without the aid of an anæsthetic. In such cases he found the self-retaining palate retractor of great aid. Another valuable instrument for operating upon this condition is Bosworth's Post-Nasal Curette which, together with the post-nasal cutting forceps of Gleitsman, will enable us to remove most, if not all, of the diseased tissue at one sitting.

DR. MURRAY coincided with Dr. Bryan in his view of hypertrophy. He thought with him that the recumbent position was the proper one whenever an anæsthetic is to be administered. Dr. Richardson has said that he has no fear of hæmorrhage in these operations, but serious hæmorrhage does occur; he probably meant that he did not fear hæmorrhage in the cases which he selected for operation. Dr. Murray was under the impression that at the last meeting of the American Laryngological Association a death was reported from hæmorrhage due to this cause. While attention had been called by several men, among the number Voltolini, who reported two cases, prior to the discussion of the subject by Meyer, of Copenhagen, he was the first to give an accurate description of the disease and its proper treatment. He found that in two thousand cases examined, the disease occurred in the proportion of one per cent. Doyer, of Leyden, says that five per cent. of school children are affected with the disease. Dr. Murray believed that in finding fifty per cent. of all the children brought to him to be suffering from the disease,

Dr. Richardson had had an unusual experience. The contraction of the chest found in these cases Luenberg had ascribed to the efforts of the diaphragm to overcome the obstruction to respiration caused by the growth in the naso-pharynx, the contractions corresponding to the attachment of that membrane to the parietes.

DR. RICHARDSON in closing the discussion said that he had used the word hypertrophy to mean enlargement, *i. e.*, simple inflammatory enlargement, and it was frequently used in such sense. Ether had never caused excessive salivary secretions in his cases. He had no fears of hæmorrhage. He had heard of hæmorrhage from tearing the mucous membrane; and whenever it occurred he attributed it to such tearing and not to the cutting of the adenoid growths.

FOREIGN CORRESPONDENCE.

LETTER FROM PARIS.

(FROM OUR REGULAR CORRESPONDENT.)

Dr. Duplay's Address at La Charité Hôpital—The Pasteur Institute.

Dr. Duplay, who was recently appointed Professor of Clinical Surgery at La Charité Hôpital in the place of the late Professor Trélat, delivered a most interesting lecture on assuming his office. After having rendered a just tribute to the merits of his predecessor, he began by criticizing certain surgical tendencies which are just now in vogue in the profession. He said that within the last 15 or 20 years, a complete transformation has taken place in surgery. The introduction of antiseptic in surgical practice has contributed largely to this transformation. It is scarcely 20 years ago, in certain hospitals, and particularly in certain seasons, the smallest surgical intervention, or the most simple incision was followed by the occurrence of terrible accidents such as lymphangitis, phlegmon septicæmia, pyohæmia, etc. Antiseptic has altered all this, it has considerably diminished the duration of the treatment after an operation. Union by first intention which always failed to take place, is now the rule, and the wound resulting from the ablation of the breast, which took two months and more to cure by suppuration, is now healed by first intention in about eight days. Moreover, thanks to antiseptic, the surgeon can undertake with comparative safety operations which, formerly, he had not dared to do. He now fearlessly opens the articulations, and practices on the abdomen, in the diseases of the genital organs in women, the most daring operations. But while saying so much in favor of surgical antiseptic, Dr. Duplay pointed to the reverse side of the medal. He observed that there was a sort of operating mania, a *pruri-*

go secundi among certain surgeons, particularly among the young generation which he explained thus: Formerly, owing to the frequency of post-operative accidents, the surgeon decided upon intervening only when an operation appeared absolutely indispensable. Now, on the contrary, post-operative accidents have disappeared. Trusting to this impunity, the surgeon has a great tendency to intervene as soon as an operation appears practicable. The older surgeons hesitated a good deal to operate owing to the occurrence of consecutive accidents, they consequently carefully examined the parts affected, the general state of the patient, his temperament, and his antecedents, in a word the surgeon sought to make a rigorous diagnosis. Then the utility of the operation was discussed at some length, the question, if the chances of cure were equivalent to the gravity of the disease, was carefully weighed. Now, all these considerations had become secondary and often the diagnosis is effected by the operation. When it concerns a tumor, the surgeon scarcely occupies himself as to its nature. The tumor is removed, and, it is afterwards examined at leisure. In cases of an affection of the abdomen, the surgeons of to-day do not make those brilliant and delicate diagnoses made in former times. The abdomen is opened, the surgeon looks into it, and if there is nothing to be removed, he closes it. The same remarks may be applied to prognosis. The question whether the patient could be cured by other means was scarcely discussed, nor whether the benefits of the operation were sufficient to justify it. It is thus that the surgeon practiced on the face the most terrible operations for cancers of the tongue, pharynx, etc., and the patient succumbed with or without relapse, a few weeks after, without obtaining the least profit by the intervention. The ablations of the thyroid gland in goitrous subjects may seem very fine as operations, but, afterwards, the patients become affected with cachexia. In the midst of the hecatomb of Fallopian tubes and ovaries which some surgeons give themselves to, it is not considered whether a certain number of patients could be cured by other means. In depriving a patient of the reproductive faculty we give rise to troubles more or less serious in the patient's physical and moral condition. In all operations even when practiced under the strictest rules of antiseptic there is still one danger to be considered, and that is the least negligence in the application of this method suffices to compromise all. A catgut of bad quality, a solution very weak, a sponge badly prepared, might destroy one's assurance. Limited space will not permit me to enter more fully into Professor Duplay's interesting lecture. He concluded by observing that in this surgical revolution as well as in all others, there is good and bad, and he recommended that while the antiseptic

method should be religiously observed, clinical observation should never be neglected.

On June 4 a general meeting took place at the Pasteur Institute, when a report was read concerning the progress of the antirabic inoculations since the foundation of this method of treatment. The Institute is divided into two grand departments, viz.: one for treatment and the other for experiments. The treatment consists in simple inoculations, to which the French and foreigners bitten by a mad dog are submitted. Persons undergoing treatment are divided into three categories: 1. Persons for whom the rabies of the animal that bit is experimentally demonstrated by the development of rabies in an animal inoculated or bitten at the same time as the persons treated. 2. Persons for whom the rabies of the animal that bit is established by veterinary examination. 3. Persons bitten by animals suspected of rabies. The following is a statistic of the results obtained:

Year.	Persons treated.	Deaths.	Mortality, per cent.
1886	2,671	25	0.94
1887	1,770	13	0.73
1888	1,622	9	0.55
1889	1,830	6	0.33
Total	7,893	53	0.67

It may be remarked that the proportion of deaths is very feeble, and that the mortality is diminishing every year. This diminution is due to a better application of the treatment. M. Pasteur observed that it was at first difficult to know which formula of treatment should be adopted. He decided upon proportioning the injection to the gravity of the bite. In order to regulate this treatment he found it necessary to divide the bites into three categories: 1. Bites on the head and on the face. 2. Bites on the hands. 3. Bites on the limbs and elsewhere. In these three last years, of 7,893 persons treated 672 were bites on the head, 4,387 were bites on the hands, 2,834 were bites on the limbs. Thus it may be seen that the bites on the hands (56 per cent.) were very frequent. To the question as to whether rabies is more prevalent in some places than in others can only be answered by the creation of antirabic institutes in different parts of the world. It may, however, be observed that climate has no influence upon the question; and, contrary to what is generally supposed among the public as regards the influence of seasons, the maximum of cases takes place at the end of winter and at the commencement of spring. In June and July rabies diminishes, and increases after October till the month of February.

A. B.

In the German Empire, during the past five years, there has been an increase of 25 per cent. in the number of cases of insanity, against an increase of 3.5 per cent. in the population.

DOMESTIC CORRESPONDENCE.

Dry Method of Treating Wounds, or Antiseptic Surgery a Myth.

To the Editor:—With your permission I would like to make a brief reply to my friend Dr. Miller, of Helena, Mont., who along with a few other brave souls, has planted himself in front of the flood of antisepticism that is sweeping around the world, and proposes to turn back the tide and wipe out with a few strokes of the pen the supposed scientific labors of Pasteur, Koch, Lister and all that genus. Listerism—antisepticism, is reduced, according to his estimation, to a piece of common *Castile soap*, a basin of *slough water*, a *common kitchen towel*, dried in the air simply, and a *bunch of absorbent cotton*! If this is not what he means, then what does he mean?

Does he insist that the towel shall be ironed out with a very hot iron just before use, or that the water shall be boiled for ablution purposes? It does not so appear. If he admits the necessity of thus ironing the towel or boiling the water, he takes the force out of his pretended argument against antiseptic methods. The doctor was careful not to use the term aseptic, or mention the necessity of keeping a wound in an aseptic condition, for this likewise would have spoiled the best argument he could have made against Listerism or antisepticism. The moment a man acknowledges the importance of the aseptic condition of wounds, then he acknowledges that there are septic agencies to combat. Henceforth it becomes a matter of methods.

The doctor says in the first part of his article (July 5) that all the benefits of wound dressing "are summed up in cleanliness, and the practically dry and infrequent dressing."

Again he says: "If microorganisms were the cause of the unfavorable results of wounds, it has long since been demonstrated that any of the so-called germicides, to be efficient, would likewise destroy the patient."

And again in the last paragraph he says: "I had reasoned that if there were inimical germs in the air, they were likely to be worse in the water, the former being nature's purifying agent."

If the three above quotations are considered carefully they convey considerable confusion of thought. Can any one tell whether the doctor believes there are any germs anywhere inimical to wound healing? Either there are or are not such germs. We must all take one side or the other of this question. There is no middle ground. If there are no germs inimical to wound healing in the atmosphere or in water, why do these gentlemen insist upon or even concede the necessity of "scrupulous cleanliness" in operations or the dressing of wounds? Cleanliness from what?

And how do we obtain that end? If there are no germs that promote suppuration, septicæmia, pyæmia, and interfere with the healing of wounds, pray tell me what is the use of going to the trouble of even so much as to wash off the parts with un-boiled slough or hydrant water? Why wash at all, the instruments, the hands, the part to be operated on, the wound or anything whatever? Those individuals who are feebly endeavoring to block the wheels of progress in antiseptic surgery are willing to concede that there has been a wonderful drop in the mortality of accidental and operative wounds within the last twenty years. And to what do they attribute this grand result? Is it possible that ablutions with slough water and the "dry dressing" should have all the credit? If so matters are much simplified. It occurs to me that most all those members of the profession who talk about cleanliness in contradistinction to antiseptic surgery, or cleanliness as constituting the sum and substance of antiseptic surgery, are frequently playing upon words. They boil the water they use; their sponges have been soaked in a chemical agent; their instruments have been carefully washed and dipped into a chemical agent, or passed through the blaze of a spirit lamp; hands carefully ablated in a chemical agent, etc. It is quite likely they will eschew carbolic acid because that would give them away, and some friend might ask why they had taken up that "exploded Listerism?" But the moment it is conceded that scrupulous cleanliness is essential in wound treatment, it is conceded that there is something very important to be kept out of wounds. What do the quibblers call this important something? Is it simply inert dirt, or is it something that possesses vitality and can multiply in the wound? Is there any so bold as to say it is not an organic germ? But says the doctor, "If microorganisms were the cause of the unfavorable results of wounds . . . the so-called germicides, to be efficient, would likewise destroy the patient." The author is not clear as to whether there are any germs "inimical" to wounds, but is quite clear that there is no agent that will destroy them without destroying the patient; yet he advises the most scrupulous cleanliness, and for what, and how? The doctor intimates that if there are germs in the air there are more in the water, hence the necessity of keeping water away from the wound and applying the dry dressing. So it is not clear that he even uses slough water for cleansing purposes. What liquid is it?

It has been settled long since that there can be no such thing as fermentation, decomposition, septicæmia or pyæmia in the absence of bacteria, and in presence of this fact why should any one use the language, "If microorganisms were the cause of the unfavorable results of wounds?" If not bacteria, what are you endeavoring to keep out of the wound? Why do you close the wound,

perfectly coapt the surfaces and apply pressure to keep them so? Why not close the wound with the interrupted suture and leave it then exposed to the air—would not this keep it dry enough? Why do you want the wound hermetically sealed, as it were? These are all pertinent questions.

I am not contending against the practice of perfectly coapting the surfaces of a freshly made, cleanly cut, aseptic, operative wound, and applying a dry aseptic or antiseptic dressing, if you please, to said wound, with sufficient pressure to keep those surfaces in perfect apposition and exclude all atmospheric germs. This is Listerism, this is antisepticism. But let us not hear the remark that the germ theory of the poisoning of wounds is a myth, and that there are no methods known to science by which said germs can be destroyed or kept from poisoning wounds without at the same time destroying the life of the patient. Men who practice surgery on the last mentioned principles, at the present day, had better be sure that their numerous cases of death from septicæmia and pyæmia do not come up for adjudication in the courts, for they would surely be held accountable for malpractice.

A. C. SIMONTON, M.D.

San Jose, Cal., July 12, 1890.

NECROLOGY.

Willis F. Westmoreland, M.D.,

It is with mournful heart that we chronicle the death on the 27th of June, of Dr. Willis F. Westmoreland, of Atlanta. We feel that every reader of the *Journal* will join in our sorrow over the demise of this truly great man. For many years he has stood as a landmark to the profession of this and neighboring States, and his commanding figure has been as well known and as widely recognized as his splendid reputation as a surgeon and his unsurpassed skill as a diagnostician.

Dr. Westmoreland was born in Fayette county, Georgia, on the 1st of January, 1828. His early education was received in a neighborhood school of his native county, and was completed at a high school in Griffin, Ga. He attended his first course of lectures in the Medical College of Georgia, in 1848 and 1849. At the close of the latter year he entered as a student Jefferson Medical College, Philadelphia, from which he graduated in 1850 with a class of which Wm. H. Pancoast, S. Weir Mitchell and other eminent physicians were members.

Returning to Georgia he commenced the practice of medicine in his native county, but in July, 1851, removed to Atlanta, where he practiced successfully until the fall of 1852. At that

period he placed himself under the special instruction of Dr. Paul F. Eve, Professor of Surgery in the Medical Department of the University at Nashville, Tenn., where he remained eight months. In the winter of 1852 he visited Paris, and became an attendant upon the lectures of Velpeau, Nelaton, Ricord and other eminent surgeons, for about two years. In 1854, while still in Paris, he was chosen Professor of Surgery in the Atlanta Medical College, a position which he held and whose duties he fulfilled to the day of his death. In 1855 he founded the *Atlanta Medical and Surgical Journal*, and was actively connected with its management for more than twenty years. At the time of his death he still held a position on its editorial staff. In 1856 he again visited Europe, and spent several months in Paris, perfecting himself in the art of surgery. On his return he located in Atlanta and rapidly built up a large and lucrative practice. When the war between the States came on, he offered his services to the Southern Confederacy, and they were promptly and cordially accepted. He served until the surrender at Appomatox, when he returned to Atlanta and resumed the practice of his profession. As the years rolled by his fame increased, until it extended to every State in the Union, and he came to be looked upon as the foremost surgeon of the South. For a few years before his death he was in feeble health, yet he remained at his post, and many a time arose from a bed of sickness to minister to the sufferings of others. When the hand of death was finally laid upon him, he went to his grave full of honors, and carrying with him the love, the respect and the admiration of all who knew him. He leaves a son, Dr. Willis F. Westmoreland, Jr., and a daughter, Mrs. John Rommel, of Philadelphia, to mourn a loss which to them is as irreparable as it is to the profession and to the community in which he lived. Editorial, *Atlanta Medical and Surgical Journal*.

Charles Linnaeus Allen, M.D.

Dr. Charles Linnaeus Allen died suddenly of apoplexy at Rutland, Vt., on July 2, aged 70 years; was born in Brattleboro on June 21, 1820. He was graduated from Middlebury College in 1842, and from the Castleton Medical College in 1846. The deceased was a professor in Castleton Medical College before the war and afterwards became president of the institution. He left there, however, to accept the professorship of civil and military hygiene in the University of Vermont at Burlington. While there he went to the war and was appointed a member of the examining board of brigade surgeons, being associated with those celebrated physicians, Drs. Clymer and Brinton. He resigned the position in 1864. He was a member of the local board of

pension examiners, and with the exception of the time during Cleveland's administration he had been connected with the board since the close of the war. In 1857 he was acting professor of chemistry and of materia medica in Middlebury College.

Dr. Allen was secretary of the State Board of Health, and had been connected with the board since its organization; he did a vast amount of work as secretary, for which he received no compensation. He edited the *Sanitary Visitor*, and did much valuable work in the interest of the health of the State.

The deceased was the first president of the Rutland Medical Club, an honored member of the Vermont State Medical Society, of the American Medical Association, the American Academy of Medicine, also the International Medical Association, always attending the meetings of each if it was possible to do so. He was an honorary alumnus of Rush Medical College of Chicago.

Dr. Allen was a gentleman in every sense of the word, quiet and unassuming in his manner, and a general favorite with all his acquaintances. He was highly esteemed by his professional brethren, who often sought his advice and counsel in difficult and obscure cases. His consulting practice was large throughout the State and often extended outside. He was possessed of rare common sense, logical and accurate in his conclusions, and regarded as an excellent diagnostician.

He was a brother of Prof. J. Adams Allen, LL.D., dean of Rush Medical College.

The Death of Sir Edwin Chadwick.

The death of the "Father of English Sanitation," Sir Edwin Chadwick, is announced as having taken place July 5, at the ripe age of 90 years, as a remote consequence upon an attack of the epidemic influenza sustained by him last winter. Chadwick was one of the best minds of his day and nation, the peer of many whose names are far more widely known. He began his labors in the sanitary field as early as 1832, and continuously busied himself therein during nearly sixty years. The achievements of his life's work are marvelous in their variety and success, and England, but especially the poor of England, owe Chadwick a debt of gratitude that never will be adequately paid. The little, trivial honor of knighthood was meted out to him, late in his life, as a recognition of his services in the saving of human life, the amelioration of the sufferings of children in factories, and other vast sanitary labors. This was the Government's estimate of his worth and works, but Chadwick found his most hearty welcome when he went among the medical men and health officers of England, as he often did, and he often expressed himself as feeling most "at

home" among medical men whenever he was permitted to discuss with them his favorite themes about the maintenance of the public health. It was only a few days before his death that he received a diploma of honorary membership from the New York Medico-Legal Society.

ASSOCIATION NEWS.

Report of Committee on Dr. Freire's Claim to have Discovered the Yellow Fever Germ.

To the Section on State Medicine of the American Medical Association.—Your Committee to whom the reports of Drs. Freire and Sternberg were referred for an expression of opinion on the present status of Dr. Freire's claim to have discovered the yellow fever germ, and his ability to prevent the disease by inoculation, respectfully report that Dr. Freire's professed discoveries still need verification. That Dr. Sternberg appears to have made a diligent and experimental study, thoroughly going over the whole ground of Dr. Freire's experiments with such particularity as to carry conviction to the mind of your Committee that the germ of yellow fever is yet to be discovered.

A. N. BELL, M.D.,
R. RUTHERFORD, M.D.,
C. A. LINDSLAY, M.D.
Committee.

May 21, 1890.

MISCELLANY.

LETTERS RECEIVED.

Dr. A. R. Small, Chicago; Dr. W. B. Harrison, Columbia, Tenn.; Dr. F. J. Groner, Big Rapids, Mich.; Dr. M. L. Somers, Altoona, Kan.; Dr. J. H. Devor, Fort London, Pa.; Dr. A. W. Sidney, Fitchburg, Mass.; Dr. W. A. Dietrich, Lookout Mountain, Tenn.; Farwell & Rhines, Watertown, N. Y.; Dr. F. King, Dr. T. H. Manley, New York; Dr. Henry O. Marcy, Dr. J. L. Williams, Boston, Mass.; F. Koeller, Pittsburg, Pa.; Dr. W. H. Hutton, Baltimore, Md.; The Drevet Mfg. Co., New York; Dr. E. F. Brush, Mt. Vernon, New York; Dr. H. L. Watson, Hartford, Vt.; Dr. C. H. Bradley, Haverhill, Mass.; Dr. J. E. Boylan, Dr. W. W. Dawson, Dr. G. H. Goode, Dr. O. P. Holt; Cincinnati Polyclinic, The Cincinnati Gravure Co., Cincinnati; Dr. J. C. Lange, Pittsburg, Pa.; Dr. J. T. Ball, Judson, Ind.; Dr. J. T. Wood, Toledo, O.; Dr. J. C. Hoag, Chicago; Dr. B. E. McKenzie, Toronto, Can.; Dr. A. C. Simonton, San Jose, Cal.; Parke, Davis & Co., Detroit, Mich.; Dr. O. T. Maxon, S. Evanston, Ill.; Dr. D. Streett, Baltimore, Md.; West. Penn. Med. College, Pittsburg, Pa.; The Medical Herald, St. Joseph, Mo.; Dr. W. F. Reynolds, York, Neb.; Dr. J. G. McDougal, New Lexington; Dr. T. L. Wright, Bellefontaine, O., Miner & Elbreg, Indianapolis, Ind.; Dr. Cephas Park, Oquawka, Ill.; J. Astier, Paris, France; Dr. J. B. Matteson, Brooklyn, N. Y.; Dr. E. E. Montgomery, Philadelphia; J. P. Kaster, Albuquerque, N. M.; Dr. T. L. Wright, Bellefontaine, O.;

New Orleans Publishing Co., New Orleans, La.; Maltine Mfg. Co., J. H. Bates, Dr. R. B. James, Dr. J. A. Cutter, Dr. T. H. Manley, Dr. J. Shradly, New York; Battle & Co., St. Louis, Mo.; Dr. M. Gibson, Wilkes-Barre, Pa.; Chas. H. Fuller, Chicago Polyclinic, Dr. E. F. Ingals, Chicago; Thompson S. Westcott, Dr. E. E. Montgomery, Philadelphia; Dr. Jonas M. Cleland, Sioux City, Ia.; Doliber, Goodale & Co., Boston, Mass.; Dr. B. L. Hovey, Rochester, N. Y.; Pantagraph Printing and St'y Co., Bloomington, Ill.; Dr. N. Senn, Kiel, Germany; Allen & Yates, Buffalo, N. Y.; Dr. Wm. Porter, St. Louis, Mo.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from July 12, 1890, to July 18, 1890.

Capt. William H. Arthur, Asst. Surgeon, is granted leave of absence for three months, to take effect September 15, 1890, or as soon thereafter as his services can be spared. By direction of the Secretary of War. Par. 1, S. O. 160, A. G. O., Washington, July 11, 1890.
Capt. Louis M. Maus, Asst. Surgeon, leave of absence on surgeon's certificate of disability granted in S. O. 4, January 6, 1890, from this office, is extended six months on account of sickness. By direction of the Secretary of War. Par. 16, S. O. 160, A. G. O., Washington, July 11, 1890.
Col. Charles Page, Asst. Surgeon-General, Medical Director of the Department, is granted leave of absence for one month, to take effect on the 30th inst. Par. 3, S. O. 91, Dept. of the Missouri, St. Louis, Mo., July 14, 1890.
Capt. William H. Corbusier, Asst. Surgeon, is granted leave of absence for four months, on surgeon's certificate of disability, with permission to leave the Dir. of the Missouri. By direction of the Secretary of War. Par. 4, S. O. 162, A. G. O., Washington, July 14, 1890.
Capt. John L. Phillips, Asst. Surgeon, is granted leave of absence for two months. By direction of the Secretary of War. Par. 4, S. O. 164, A. G. O., Hdqrs. of the Army, Washington, July 16, 1890.

Official List of Changes in the Medical Corps of the U. S. Navy for the Week Ending July 19, 1890.

Asst. Surgeon E. W. Auzard, detached from U. S. S. "Galena" and wait orders.
Surgeon A. C. Eckstein, granted leave of absence for month of August.
Medical Inspector T. N. Penrose, granted leave of absence for two weeks.
P. A. Surgeon A. G. Cabell, granted leave of absence for the month of August.
P. A. Surgeon Richard Ashbridge, granted one month's sick leave.
Surgeon T. C. Heyl, granted leave of absence for the month of August.
Medical Inspector Geo. H. Cooke, detached from Navy Yard, League Island, and to the "Pensacola."
Medical Inspector C. H. White, detached from the "Pensacola," proceed home and wait orders.
Medical Inspector A. A. Hochling, detached from Naval Hospital, Washington, and to League Island Navy Yard.
Medical Inspector H. M. Wells, detached from Museum of Hygiene and to Naval Hospital, Washington.
Asst. Surgeon James M. Whitfield, ordered to U. S. S. "Ajax" and other monitors.
Medical Inspector Theodor Woolverton, ordered to the U. S. S. "Philadelphia."
P. A. Surgeon P. A. Lovering, detached from the U. S. revenue str. "Wabash" and to the U. S. S. "Philadelphia."
Asst. Surgeon T. B. Bailey, detached from the U. S. S. "St. Louis" and to the U. S. S. "Philadelphia."
P. A. Surgeon S. S. White, ordered to the Marine Rendezvous, San Francisco, Cal.

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ORIGINAL ARTICLES.

SOME NEW MEDICO-LEGAL QUESTIONS RELATING TO INEBRIETY.

Read in the Section of State Medicine at the Forty-first Annual Meeting of the American Medical Association, held at Nashville, Tenn., May, 1890.

BY T. D. CROTHERS, M.D.,

SUPERINTENDENT WALNUT LODGE HOSPITAL, HARTFORD, CONN.

Eighteen centuries ago, Ulpian, the Roman Jurist wrote, "A man full of wine can neither see, hear, feel, or reason correctly."

Recently Dr. T. L. Wright has stated this fact, and urged that the testimony of inebriates, while under the influence of spirits as to matters observed in that state, must never be accepted as true unless confirmed by other evidence.

The common opinion prevalent is, that the inebriate unless stupidly intoxicated, has all his usual acuteness of perceptions and judgment, and in most cases may be more clear and accurate as to events and the consequence of his acts, than if sober.

The law assumes and implies that the inebriate is always conscious of his acts and the consequences, and whatever the stupor may be which follows from intoxication, its short duration and uncertainty cannot affect the question of responsibility. This view has no support from scientific study and experience. The rapid advances in the knowledge of brain and nerve diseases, brings out the question of the mental soundness of the inebriate with increasing frequency.

Physicians are called suddenly to answer these questions, and the time has come for a frank open study of them, above the vague theories and dogmatic assertions, which prevail in the court-room, and are asserted as principles of law.

Recently a condition known as alcoholic trance or somnambulism has been brought out in several criminal cases in court, and urged as a distinct state or irresponsibility which should be recognized.

The evidence in most of these cases was so strong as to compel a recognition, and a lesser grade of punishment was accepted. Notwithstanding this great advance, the failure of medical witnesses to understand these and other cases, revealed the urgent need of a larger, clearer

study of all the facts. The medical witness should study the facts and be able to draw scientific conclusions from them irrespective of all legal bearings, or questions of law. His sole duty is to point out the facts, and their most natural and probable conclusions. He should have nothing to do with the questions of law and legal responsibility. He is called to determine the physiological and psychological questions involved, not the legal responsibility or degree of punishment.

The physician should never attempt to harmonize the legal and physiological points of a case; he should study and defend the facts alone no matter what the consequences may be. Although alcoholic trance is still disputed, it has won a recognition simply by the array of facts which could not be explained in any other way. Following along this same line of alcoholic disability and irresponsibility, several new questions have recently come into notice; and while the courts refuse to consider them, the medical witness has a double responsibility to study the facts, and demand a hearing for them.

The first question which has come into some prominence during the past year is this: How far can the testimony of inebriates or persons under the influence of spirits, be trusted concerning matters observed in this condition?

This question called for an answer in the following cases:

An inebriate physician partially intoxicated witnessed an assault and swore to the identity and exact part which the accused was supposed to have taken in the crime.

Second, a barkeeper partially intoxicated at the time, swore to the particular man, who shot another in a crowd, where several shots were fired by different persons.

Third, a man under the influence of spirits testified that he saw the person accused put fire to a building which was burned down.

Fourth, a man on his way home from a saloon where he had spent the evening drinking, identified a man in the court-room, whom, he asserted, he had seen breaking into a house.

In the *sixth* case, a man partially intoxicated at the time, swore to witnessing the signing of a will.

In these cases the medical witness was asked, what, in your opinion, as an expert, based on the statements of the witness, and the circumstances of the case, was the condition of the witness' mind, as to the power of clearly observing and remembering the facts and incidents, to which he has testified? Also, do you believe in these cases, that the witness was competent to observe and clearly remember the incidents to which he has sworn?

If the medical expert has formed no higher opinion of inebriety, than that it is a vice in the moral sense, and alcohol produces a state of exhilaration, his answer will be unsatisfactory. But if he is a scientific student, he will form a general conclusion, which will at least approximate very near to the real facts.

In arriving at the facts, the medical witness must start from some general principles which are recognized as established beyond question.

First, the action of alcohol is always that of an anæsthetic, benumbing and paralyzing. 1. The nerve function and the consciousness of nerve impression. 2. The power of coördinating and regulating these impressions. 3. The reasoning or capacity of comparing acts and events is disturbed. Thus both the sense impressions and the power of analyzing and correctly estimating them are impaired.

This takes place in all cases depending on the amount and quality of spirits taken; where intoxication follows, these effects are very clear, but where a smaller amount of spirits are taken, and only partial intoxication present they are not so prominent. It is present in those who use alcohol continuously, and is noted as a general diminution of brain and sense acuteness.

In active life, brain workers, trained experts, and all persons whose work requires delicate nerve adjustment and accuracy of brain and muscle work, soon find the use of alcohol impairing their powers, and abandon its use, especially when they are called to do any particular work.

The musician, the actor, the scientists, and the professional and business man, very quickly discover the impairments which follow from the use of alcohol, not only over the senses, the volition, the nerve and muscle coördination, but the power of clearly realizing the relation of events. The increased action of the heart from alcohol is of short duration, and is surely followed by diminished sensibility and anæsthesia.

The vigor and strength supposed to come from alcohol quickly merges into weakness and debility.

Hence, the man who is visibly poisoned by alcohol, however slight the degree, has defective senses, defective nerve impressions, defective coördination, and defective reasoning. He is literally suffering from the first stages of paralysis, which begins with the senses. He can neither

see or discriminate accurately; he is always open to the possibility of false impressions and false conclusions, and is unable to correct them.

His senses may be but little impaired, but his power of comparison, of analyzing events and their meaning be very faulty. He has anæsthesia of the higher brain centres, which does not appear except from close observation.

From these general facts, the study of the individual case resolves itself into a question of how far the person used spirits, and how much he had drunk at or about a certain specified time; also the circumstances, conditions and surroundings of the act in question, and the statement of the man; from this medical witness can draw very accurate conclusions.

In the two murder cases referred to, other testimony made the statement of the drinking witness, doubtful. In the third case a clear alibi was established by the accused. In the other cases, although the evidence of the witness was accepted, there was a strong probability of mistake.

The conclusion which appears at this time to be sustained by all the facts and scientific study of these cases, is this:

The testimony of persons while under the influence of spirits, concerning matters observed by them, and their judgment as to events and their meaning, is never accurate, but always open to sources of error and unconscious self-deception which they are unable to correct.

The medical expert should have no hesitation in denying the value and truthfulness of all such testimony.

A second question has come up recently, along this same line of research, only more difficult and involving more accurate psychological and physiological study.

It is this: How far is the statements or confessions of persons, partially intoxicated, or under the influence of spirits, concerning their personal acts, to be accepted as true and veritable?

An answer to this question was sought in the following cases:

An inebriate shot and killed his partner while under the use of spirits. At the station house soon after, he made a confession, which reflected very severely on him. On the trial his statements of the crime was not sustained, but contradicted in many ways. *Second*, a stupid beer drinker shot his wife while drinking, ran away, was captured, told different stories of the crime, each of which aggravated his guilt. The medical experts differed widely on the questions of the truthfulness of his confession, and the man was finally hung. Later evidence appeared which indicated great doubt of his confessions, and made it probable that he had shot his wife in a very different way from that which he had sworn to.

Third, a man was found drowned, and a drinking friend confessed to have pushed him into the

water, while in a state of intoxication. This confession was clear in its details, and he seemed very earnest and contrite. It was accepted as true, and he was sentenced to prison for life. Subsequently it was found that the drowning was accidental, and the confessed murderer was miles away sleeping at this time, suffering from alcoholic stupor. A few hours later he came to the scene of the drowning, and at once came to the conclusion that he had committed the crime.

A fourth case was that of a man, who, after drinking all the evening in a saloon, saw on his way home after midnight, a deadly encounter with a burglar in the hall of a house he was passing. He was taken to the station house, and after a series of questioning, identified the burglar, and swore to many details of the crime.

This was found to be untrue, although he adhered very closely to the details and urged their truthfulness. In reality he had been told what he saw by the officer, whose suggestive questions made up the entire statement.

The medical questions in these cases were answered from the assumption that the use of alcohol, unless to stupor, does not impair the senses and reason on matters that concern the personal acts and conduct. It was assumed that any statements or confessions of crime that periled the freedom and safety of the man, could have no other motive except that of the promptings of a wounded consciousness to repair the injury. It was assumed that no man under the influence of spirits; not stupidly intoxicated, would ever confess to acts not committed, or ever delude himself with such impressions, especially as at this time the brain was in a state of increased activity. All these assumptions were wrong, and contradicted by the facts of all cases. The man under the influence of spirits is always semi-paralyzed; his brain is in a confused state, and never guided or controlled by natural healthy motives; his senses and judgment are weakened, and the repetition of any statement which may impress him, may soon seem a reality which he is never able to correct. His mind is open to all sorts of morbid impressions which quickly appear like realities.

In the lower courts these special phases of brain palsies are seen in the confessions and sworn statements of acts and events observed that are often found to be absolutely false.

The conclusion is evident that no testimony, statements or confession of persons under the influence of spirits concerning his acts, conduct or motives, has any value or can be trusted unless sustained by collateral and other evidence.

A third question along this line of inquiry has also become prominent during the year: How far shall an inebriate, or man under the influence of spirits, be held liable for any acts, or contracts, such as wills, marriage or bargains?

The question the medical man is asked is this: How far is the person in this state capable of appreciating the nature and consequences of his acts? Was his mind in any way impaired to that extent as to be unable to clearly realize his duty and obligations to himself and others? Was the act sane in its execution and reasonable consequences? These questions come up for an answer in the following cases: An inebriate who had drank at intervals for twenty years, had made a will disposing of a large property, and had repeatedly mentioned its terms with pleasure and satisfaction. At his death it was found that he had made another will giving most of his property to the *Freedman's Bureau* for the education of colored children. He had been a very miserly man all his life, and this was an unusual act. The will was made after a drink period, and he seemed to the lawyer and witnesses sober and fully conscious of what he was doing. The medical men held that the use of spirits had not weakened his mind or rendered him incompetent to dispose of his property.

In a *second* case, a man who drank to excess at intervals bought a large interest in a traveling circus while under the influence of spirits. He seemed perfectly sane at the time yet the act was unusual, and he sought to annul the contract, claiming that he was subject to undue influence.

In a *third* case, a man married a strange woman on a short acquaintance; he seemed conscious of what he did although drinking steadily at the time.

In the *fourth* case, a single man who drank steadily, married his servant, an Irish girl recently from Ireland. He was a man of culture and wealth, and the marriage was very unusual.

In a *fifth* case, now pending, a man while under the influence of spirits, placed his entire fortune in a stock brokers' company, signing elaborate, and detailed contracts, which he disavowed later.

The testimony of medical men as to the probable state of the mind, when these acts were performed, is the central evidence upon which the issue of each case must turn. The necessity of thorough scientific study of the mental condition of men who use spirits at intervals or continuously, and the application of all the facts that enter into the history of the cases in question is imperative. It is a purely physiological and psychological question above all legal bearings and common personal opinions current in public opinion.

An almost infinite variety of questions are appearing in the court room with increasing frequency, involving these facts of the mental condition of the person who uses spirits. The following statement which I have made elsewhere, is sustained by clinical study and experience in all cases.

To-day it is shown that the action of alcohol

on the brain and nervous system is anæsthetic and paralyzant. The use of alcohol to excess at intervals or continuously always numbs and paralyzes the higher operations of the brain; the over-stimulated heart reacts and depression and feebleness follow. All the senses are disturbed and become more or less incapable of transmitting the impressions which are received. The brain is incapable of accurately comprehending the nature of acts and the relation of surroundings when under the influence of alcohol. The palsy which follows from this drug masks all brain action. Delusions of vigor and strength appear; events and their consequences, and motive and conduct are all exaggerated, misconceived, and misinterpreted, and the brain is unable to correct them. The pronounced delusions, illusions, delirium, mania, imbecility, and stupor seen in states of intoxication are only the advanced stages of brain conditions which begin with the first class of spirits. The early changed conduct and speech of men who use spirits are the first symptoms of the paralyzing action of alcohol. More spirits are followed by more paralysis, and finally all judgment and experience and all distinctions of right and wrong, of duty and obligation, are confused and unreal. The supposed brilliancy which follows from the use of spirits is unreal and transient—it is the glamour of the mind which has lost its balance and is unable to correct itself. No other drugs are known whose paralyzing effects on the higher brain centers are so positive and insidious. The inebriate and moderate drinker have always impaired brain force and nerve power. The automatic nature of their life and brain work may cover up this fact; but change the surroundings and demands of the brain, and its incapacity appears. Every toxic state from alcohol more or less permanently impresses and debilitates brain integrity.

The fear of the law and consequences of acts make little impression in such cases. The brain is anæsthetized and crippled, and cannot realize events and their nature and consequences. The crime committed by an inebriate cannot be the act of a healthy brain. The more pronounced his inebriety and the longer its duration, the more positive the disease and incompetency to reason and control his acts. The effort to fix a point in all disputed cases where sanity and responsibility joins insanity and irresponsibility is an impossibility which every advance of science demonstrates. It is equally impossible to use alcohol to excess for years and have a sound, normal brain. It is impossible in such a case to fully realize the nature and consequence of acts and obligations. It is a legal fiction to suppose that a crime or act committed while under the influence of alcohol was the voluntary act of a sane man. It is a legal fiction to suppose that a sane man would plan a crime or act, then become in-

toxicated for the purpose of executing it. It is a legal fiction to suppose that premeditation in crime or acts committed by inebriates is evidence of sanity and consciousness of his acts.

Questions involving the capacity or incapacity of inebriates can never be determined by any metaphysical theory of mind or morals.

It is an error for medical men to regard inebriety in any other except from physical point of view. It is a question of facts and their meaning. Facts of heredity, of growth, of culture, and training. Facts of disease, of injuries, of degenerations both local and general, of surroundings, and mentality, and of the entire history of the case, both physiological, psychological, and pathological. From these facts only can any clear conception of inebriety be obtained.

The general problems which are presented in these medico-legal cases are: *First.* Was the person an inebriate, or one who drank spirits to excess at all times or at intervals? If this fact is established beyond question, his sanity and mental capacity may be most reasonably and naturally doubted.

Second. What was the mental condition and the circumstances of the person at the time of the commission of the act in question. Was he sane? Was the act reasonable and just in its effects and consequences? If not, the first suspicion is strengthened, and the irresponsibility of the person must be assumed, and the legal theory must be reversed; the sanity must be proven, not the responsibility.

Third. The medical man has only to gather the facts, and have the reasonable assurance of their accuracy; from this he can point out the most probable conclusions which are sustained by such facts. The question is one of preponderance of evidence, which, if it points to defective consciousness of act and conduct, and inability of control, is far more likely to indicate impaired mind or insanity than any other condition. The limits of scientific study will not sustain, and will not support assumptions of boundary lines of responsibility and irresponsibility.

SCARLATINIFORM ERYTHEMA IN TYPHOID FEVER.

Read in the Section of Dermatology and Syphilography at the Forty-first Annual Meeting of the American Medical Association, at Nashville, Tenn., May 22, 1890.

BY A. H. OHMANN-DUMESNIL,

PROFESSOR OF DERMATOLOGY IN THE ST. LOUIS COLLEGE OF
PHYSICIANS AND SURGEONS.

There is perhaps no class of diseases within the broad domain of dermatology which possesses more interest, both in a pathological and in an etiological point of view, than the erythemata. To an investigator this class becomes invested with so much of the alluring as to easily lead

him into the speculative domain of medicine. The subject, however, is so vast and comprehensive as to preclude the possibility of its consideration within the narrow limits of an essay. For this reason, I have taken up but one special form of a certain variety of the erythemata which has been of some interest to me for two reasons, viz.: its comparative infrequency, and the scanty literature which has been devoted to it. The literature of erythema as well as that of typhoid fever contain but a few allusions to the scarlatiniform erythema, or as it is called by some authors, the desquamative scarlatiniform erythema, of typhoid fever.

I have thought that a brief review of the cutaneous manifestation itself might not be inappropriate as an introduction to the subject proper. It has been described under various names by different authors, and we may recognize it in the *scarlatinoïde* of Guéniot; the *erythema punctatum* of Crocker and others; the *roséola scarlatiniforme* of Bazin; the *symptomatic erythema* of Hyde; the *scarlet rash* of Murchison; the *diffuse erythema* of Liebermeister; the *erythème infectieux* of Jacquet, etc. Some writers have given good descriptions and others have merely afforded an outline sufficient to recognize the condition providing that one had a previously acquired knowledge of it. Brocq, in his excellent paper on "Desquamative Scarlatiniform Erythema," gives a minute description of this affection in general, and dwells at some length upon the difficulties experienced at times in making a differential diagnosis from scarlatina. Besnier, in an article on the "Pathology of Erythemas," distinguishes between scarlatiniform erythema and scarlatinoid erythema, although he is free to confess that the objective symptoms differ but little if at all. The following is a general description of scarlatiniform erythema somewhat abridged from Van Harlingen's description: The disease is ushered in by malaise, lassitude, rigors, etc., which may be severe or slight and which may last several days. Then a fever sets in and this reaches its highest point in two or three days. Nausea and anorexia are rarely observed. There is no diarrhoea; sweating is suppressed or there may be an excessive amount of it. The eruption may come out early. The lesions which first appear consist of very small papules which soon coalesce and form scarlet patches, sometimes very extensive, and accompanied by itching, burning and smarting. The eruption may begin at the upper part of the body and travel down to the feet or *vice versa*; it may also attack several localities simultaneously. The eruption spreads rapidly, sometimes involving the entire body in twenty-four hours. The head and the extremities are usually the last attacked and the former may entirely escape. When fully developed the eruption is characterized by an intense and uniform redness, which, however, shows

darker shades in places, as the back of the neck and the abdomen. Occasionally oedema is observed, or a hæmorrhagic appearance is assumed. In three or four days (in rare cases longer), desquamation sets in. Large, dry, and abundant flakes are shed, the epidermis of the palms and soles being shed *en masse*. The nails and hair are frequently shed. A striking feature of the disease is its tendency to relapses. The first attack is usually the most severe, lasting a month or six weeks, then, after an interval of several months to several years, there may be a second attack which is less severe. Successive relapses may then occur with increasing frequency and decreasing severity, until they may even merge into one another.

Such are the salient points of the disease uncomplicated or independent of any other pathological process. It has a very close resemblance to scarlatina, and some cases have simulated the latter disease so closely as to have called into requisition a high degree of diagnostic acumen in order to determine the true status of affairs. I do not purpose to enter into a consideration of the points involved in the differential diagnosis of the two affections, but will relate some cases of scarlatiniform erythema occurring in the course of typhoid fever, and then briefly consider some of the points which are involved in the question of the pathogeny of the process in the particular instances under consideration, and whether the process can be considered as an absolutely independent one, at any time.

Case 1 (personal).—Annie E., æt. 10, had been previously strong and healthy. When 4 years old she had scarlatina and when she was 6 she had the varioloid. About October 17, 1889, she contracted typhoid fever from her mother, the disease declaring itself at the time that the latter was convalescing. The following extracts from the notes of the case are sufficient to briefly outline it:

October 20, 1889. Temperature 102.5°, pulse 100.

October 23. Temperature 105°, pulse 112. Marked red, irregular patches, varying in size from a split pea to the thumb-nail, were observed in the right iliac region. They disappeared on pressure. In addition several small vesicles, of pin-head size, were observed in the patches.

October 24. Patches of a brighter color and observable on pubes, upper portion of abdomen, vulva, flexor surfaces of thighs, but not below the middle third.

October 25. The eruption has become diffused over the entire abdomen and has extended to the chest, while several patches have appeared on the flexor surfaces of the arms and upon the wrists.

¹ I am indebted to Dr. W. W. Graves, of St. Louis, for the opportunity of observing this case, and also to his kindness for the full notes which he kept in this interesting case.

The entire flexor surfaces of the thighs and legs are also involved.

October 28. Temperature 105° , pulse 124. The eruption is at its maximum. The face and scalp are entirely free and the rash is scanty on the neck. On the extensor surfaces of the limbs it is very scanty or absent, the eruption being separated from the healthy skin by a sharp line of demarcation and disappearing easily under pressure to return as soon as the pressure is removed. The eruption is markedly prominent upon the abdomen and at the flexures of the joints. Small cyanotic areas are visible on the abdomen and thighs. The skin of the abdomen was thick, dry, and leathery to quite a degree, not being so much so in other parts.

October 29. Desquamation began on the abdomen and progressed rapidly, being completed in five days and progressing in the same order as the eruption. The desquamation occurred in large flakes; that of the palms and soles being entire casts. As the desquamation progressed the temperature became lowered, so that on the fourteenth day of the typhoid fever it was 100° , the pulse being 96.

November 2. On this the sixteenth day there was a relapse. The temperature rose to 102.5° , pulse 110.

November 3. Temperature 104° , pulse 130. Patches appeared again on the abdomen.

November 4. Temperature 105° , pulse 140. Rigor; pain in the chest. Capillary bronchitis present. The eruption was spreading to the chest and thighs.

November 5. Temperature 105.5° , pulse 150, respiration costal, 70 to 75. The eruption seemed to be fully developed. It was confined, as before, to the flexor surfaces. It was not as intense as the former eruption, being more faint in color and the skin not so thick and dry. There were also fewer vesicles.

November 6. Temperature 105.5° , pulse 160 to 170, respiration 70 to 80. Desquamation began on the abdomen; death appeared imminent.

November 10. During the four days, since the last record, desquamation was rapidly accomplished. The heart's action grew more feeble from day to day, respiration more embarrassed and feeble, delirium more marked until death from capillary bronchitis supervened.

The autopsy, performed twelve hours after death, confirmed the diagnosis of typhoid fever. The spleen, liver, and kidneys were all enlarged.

Case 2—(Case 3 of Dr. J. W. Moore). On Sunday, October 7, 1888, he was called to see a young man of 19, at that time on the twentieth day of typhoid fever. The reason for calling him in was the appearance some hours previously of a widespread rash which exactly resembled that of scarlatina. It consisted of minute punctiform, bright red papules, with a general or con-

fluent efflorescence on the trunk and near the large joints, particularly on their flexure aspect. On September 24 the patient consulted Dr. Pollock, who found his temperature high and sent him to bed. It was soon evident that he was about a week ill of typhoid fever. The disease ran a tolerably normal course until October 6 (nineteenth day), when an alarming "dip" in the temperature occurred. At 10:30 A.M. a minimum of 96° was recorded, but a recovery took place and at night it was 100.9° . At this time a scarlatiniform rash was rapidly spreading over the chest and back. Considerable desquamation followed the disappearance of the rash. The patient recovered, being convalescent on the thirty-sixth day.

Cases 3 and 4—(Whipham). On April 13, 1883, Dr. Thomas Whipham reported to the Clinical Society of London, two cases of enteric fever accompanied by an erythematous eruption resembling that of scarlatina. Both of these cases proved fatal and the presence of typhoid was confirmed by autopsies.

Case 5—(Siredey). A case of typhoid fever in which on the fifteenth day a scarlatiniform erythema appeared, which, commencing in the right cheek, spread rapidly over the face and neck, and by the following day occupied the whole surface of the body. Almost immediately, in the groins, the axilla, and on the back, the epidermis was raised by a serous exudation. Desquamation occurred in large flakes.

A number of cases similar to those given above, may be found in literature. Dr. John Harley records three cases among others which were most probably scarlatiniform erythema occurring in the course of enteric fever. Dr. Wilks, in 1864, made models from cases occurring in two women. The models, which are now in Guy's Hospital Museum, represent the abdomen, forearm, and hand. The rash is of a bright crimson, punctated, macular, and diffused. Féréol reported a case, in 1876, of a young man with symptoms of typhoid fever with a scarlatiniform eruption.

Raymond and Nélaton observed two cases of typhoid fever, in 1878, which were accompanied by this peculiar rash. Moutard-Martin noticed a case in which a rash, which he called papular erythema, appeared on the sixth day of the disease (typhoid fever). The rash gradually lost its bright color and slowly disappeared. The hands and feet desquamated in large patches, the rest of the body showing only brawny desquamation. In one of the patients of Raymond and Nélaton the eruption appeared on the fifteenth day of the fever and in the other on the twelfth.

Before entering into a consideration of the pathology of this condition I wish to allude briefly to a few cases which may, in a measure, prove helpful to a proper appreciation of the question. J. C. Wilson states that a diffuse erythematous rash is not infrequently observed in children and

even in adults with white, delicate skins, during the first week of enteric fever. It is usually marked on the abdomen and flexor surfaces, its usual duration not exceeding three or four days. Dr. Charles W. Allen records a case in which the scarlatiniform erythema was followed by erysipelas about the scalp and face. The rash became confluent upon the back of the neck, sides of the chest, across the lumbar region, and over the lower part of the abdomen, and in the popliteal spaces. Upon the arms it was wholly confined to the flexor surfaces, and was but sparsely scattered over the legs, backs of feet, hands and chest. Upon the chest, just in front of the axillæ, and upon the back and sides of trunk there occurred a noticeable mottling or measles-like eruption of bluish macules. These persisted after the erythema had disappeared, and in the subsequent desquamation were the last to lose their epidermis. Crocker states that scarlatiniform erythema is observed in septicæmic conditions, and in this he is confirmed by a large number of writers upon surgical topics, who have described the eruption under various appellations; also in empyema, and in the enteric fever of puerperal women. The so called *erythema puerperarum*, which attacks the abdomen and rarely the face and hands, may be included in this class. Flint states that a scarlet rash occasionally precedes the characteristic roseolar eruption in typhoid.

In making an analytic study of the pathogeny of scarlatiniform erythema as it occurs in typhoid fever we are confronted with a problem whose difficulties are increased by the fact that the list of detailed cases is a very small one. This precludes, to a great extent, the possibility of deducing certain conclusions such as might be rationally based upon a study of clinical symptoms. What few cases have been reported, however, seem to point to the fact that the first eruption occurs during or about the first week of the typhoid attack, and may be followed by a second attack during the third week. This would seem to point to a different origin for each attack, *i. e.*, a vaso-motor disturbance of a reflex character for the first attack, and a toxic origin for the second. Besnier, in his excellent paper on the pathogeny of erythema, states that, in the scarlatiniform erythema, the cause is never an exclusive one. He states that the eruption does not depend upon any particular cause either internal or external, but upon the subject himself. There must exist a predisposition or the process will not manifest itself. He has records of cases of the eruption in which it has been apparently produced by widely differing causes not only in different individuals but in the same subject. Unfortunately, almost every condition has come into consideration in this analysis except typhoid fever, and it is in this very one that I am inclined to the view that the pathological process of the disease exerts

a marked influence upon the production of the eruption. Whether we admit of a predisposition or not it is, after all, the exciting cause which we are endeavoring to establish not as it produces its effects remotely, but directly. The fact that the eruption has been observed quite a considerable number of times following operations, inflammatory conditions (non-septic in nature), and other conditions which are more or less material in producing vaso-motor disturbances, would seem to point to this process as a possible cause. Moreover, in so-called idiopathic scarlatiniform erythema a pyretic state is observed to precede the eruption, a fact which would seem to lead to the same conclusions. On the other hand, septic and pyæmic conditions of different origin, as well as auto-intoxications from different causes (rheumatism, alcohol, etc.) have been accompanied by the same eruption. Taking all of these facts into consideration, I am led to adopt a conclusion formulated by Dr. J. W. Moore, that the scarlatiniform erythema which shows itself at the end of the first week of typhoid fever "probably depends on a reactive inhibition of the vaso-motor system of nerves;" and that the second attack which is seen in the third week depends "on septicæmia, or secondary blood-poisoning; or both these causes may be present."

That the pyretic condition exercises some considerable influence upon the production of the rash is shown more particularly in Case 1 detailed above. Sudamina was present in addition to the erythema, and we have cases of typhoid fever in which miliary rashes have occurred in addition to the rose spots. The tropho-neurotic character of the rash also finds support in the fact that urticaria is found to occur occasionally in the course of typhoid. In all of these the production of the eruptions by means of medical agents has been carefully eliminated, although the intimate pathological process remains the same, whether the exciting cause be rheumatism, copaiba, gonorrhœa, alcohol, typhoid fever, or mercury. After all, it is the ultimate result upon the skin with which we are concerned. The practical deduction to be derived from the observance of such cases is that we possibly have individuals who, as stated by Besnier, have a predisposition to a certain form of eruption, and in whom any cause which is toxic or which may in any manner produce inhibition of the vaso-motors, will give rise to an eruption closely resembling scarlatina and which has the tendency of recurring at continually shorter intervals. Besides this, the individual becomes more susceptible to the process. In typhoid fever the presence of the eruption would seem to point to a severe involvement, although not necessarily to a high degree of pyrexia, as, in some cases, the severity was indicated by a marked subnormal temperature. In either case the appearance of the eruption was coinci-

dent with the highest, or lowest temperature, or at that time when the inhibitory condition of the vaso-motor nerves was most likely to exist.

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THE RESPONSIBILITY IN INTESTINAL OBSTRUCTION.

Read in the Section of Medical Jurisprudence at the Forty-first Annual Meeting of the American Medical Association, at Nashville, Tenn., May, 1890.

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The object of this paper is to discuss the question of responsibility in the treatment of intestinal obstruction. It will have reference to the results occasioned by the delay of the attending physician in trusting to relief by medication in preference to operation.

The knowledge of abdominal diseases is making such marked advances, that the question of responsibility must enter into all cases that partake of a surgical aspect. The surgical part of our art is establishing, by its success, definite rules that must be at some future date, so formulated, that they will become not only clinical, but legal points in the treatment of all cases that affect the abdominal cavity. This is getting to be so understood that all advanced workers are compelled to appreciate this branch of the profession. The profession owes to itself, that proper measures should be taken to maintain its standing. If surgery is to be known as a science, then the truth of its assertions must be manifest. An operation to have merit must have in itself sufficient to prove its work. Having proved itself, then it expects, nay, has the right to demand that its standing be recognized. Without such rights what merit is there in anything?

Would any one be justified, to-day, in using an hot iron to control hæmorrhage instead of the ligature? Fact proved itself in this case, yet, Ambrose Parry had no more to justify him in his theory than many an operation just theorized to-day. But it proved itself, therefore it is a fact.

Intestinal surgery of to-day has gone far beyond expectations. The new method had not been asserted until repeated experiments had proved its value. The conditions for operation have not increased, but the certainty of a rational method has made operation possible in all cases that previously called for hesitation.

The day is coming when laws more definite than now will be enforced. It is against humanity's good when old opinions and practices are allowed. Suits of malpractice are more common than formerly, and while many of these are, and will be unjust, still they are the outcome of an advanced science.

The laws do not recognize ignorance of known facts. Of course it is understood that the average physician is not expected to be an expert in every branch of medicine and surgery, but, it is expected that he has at least a superficial acquaintance, sufficient to recognize the fact of the existence of certain obscure conditions; having

arrived at a conclusion, it is his duty to his patient to call in a consultant who has sufficient knowledge to elucidate and correct the difficulty.

This is the day of specialties, and on this is higher education asked for; and in consequence the public are demanding that better facilities be given to maintain a safer existence. This demand is not confined alone to medicine and surgery, but is asked of all the arts and sciences.

The day is coming when the doctor will be held more closely to account for his practice, and results will be questioned that are to-day little thought of.

On January 5th I was called to see a woman that had been under treatment for ovaritis with incidental constipation. Her history gave constipation of two months, and complete obstruction of two weeks' duration. An examination of the rectum discovered a new growth, entirely occluding the canal, that was not possible either to remove or modify. The only thing to be done was inguinal colotomy, the case ending in recovery. This case opens a field for consideration; a field that has received by far too little attention. Whether this was lack of skill or indifference on the part of the physician is a question. Would it not be more correct to say it was both? Lack of skill is not grasping the true condition of his patient, a want of discussion of the case, and an indifference to the gravity of the situation. Even had his opinion been correct, an honest consideration of his patient's welfare, and a desire to relieve the continuous suffering she was undergoing, would have made him suggest some means to alleviate it. If the obstruction would not clear up by continuous purging and repeated injection, which he tried, then more heroic measures should have been taken. Here is where the responsibility lies, for, as the case proved, if the operation had not been done, death would have resulted. If so, would he not have been responsible for the end?

I saw in a medical journal published in March, the report of a case of obstruction of the bowels in which the writer says: "The case lasted eighteen days, and then died from exhaustion after faithful trials with the long rectal tube. The *post mortem* revealed a stricture of the sigmoid flexure." Think of it! In this age that such an admission should be made! That an educated physician should calmly work with a rectal tube until exhaustion carries off his patient, when a sharp knife and a clean pair of hands would have given her a new lease of life. Was this a crime?

I have read with curiosity the numerous formulæ and methods advised for the treatment of intestinal obstruction. Their value having probably been based on a single case which showed more of the characteristics of obstinate constipation than obstruction. After being purged and

injected, in time a spontaneous movement occurs, and then the attendant will vaunt to the skies the value of his opinions, and advocate delay when circumstances, probably, have been the only factor. These are claimed as specifics. It might as well be said that antipyrin is a specific for all fevers, as increased temperature is present, but lessening of temperature is not the cure. In claiming such wonderful qualities for these formulæ they lose sight of the fact that more than one condition can arise. A strangulated bowel is different in its cause and treatment from an intussusception; therefore the unreasonableness of all such suggestions. Such is the kind of skill that is exerted in the vast majority of such cases.

To prove the value of operative interference in intestinal obstruction it will be well to look into the mortality of the various pathological changes.

In intussusception forty-eight per cent. of all cases are acute; and in the young the tendency is to the acute form, especially the ultra acute. In the latter variety the age is about one year. Of 269 cases of all ages tabulated by Lichtenstein, 100 deaths occurred in children of one year; and the longest time elapsing from onset was, in ten cases, fourteen days, eighty-three dying inside the first seven days.

Intussusception sometimes cures itself. The method of cure is divided into two distinct categories. The first is in which spontaneous reduction occurs.

The second, is where fecal fistula occurs in the bowel above, or elimination of the invaginated portion takes place.

Spontaneous reduction, while possible, is not based on sufficient authentic ground to make it reliable. The symptoms may have been similar to a definite case, but suddenly terminated in recovery. This condition could have arisen from other causes.

Elimination of the invaginated portion according to Lichtenstein, occurs in about forty-two per cent. of all cases. It is influenced by location. In the ileo-colic variety it is twenty per cent.; colic, twenty-eight per cent., and in enteric sixty-one per cent. It is exceedingly rare in children under two years. If this does occur it is not to be supposed that it ends in recovery. Forty per cent. of all such terminations end fatally. This is due to the condition of the bowel itself for want of proper union, extension of inflammation, ulceration and its discharge into the peritoneal cavity, or giving rise to chronic diarrhoea. Hæmorrhage may occur at the point of separation of the gangrenous portion. This is markedly affected by the age of the patient, increasing in proportion. Lichtenstein says that between eleven and twenty years, it is twenty per cent.; it then steadily increases until it reaches, at fifty or sixty years, fifty per cent., and in those above sixty years it reaches the fearful proportion of

eighty-five per cent. There is but thirty recoveries, and of these forty per cent. die from the secondary effects, therefore little chance is left by delay in operating.

Volvulus of the sigmoid flexure is invariably fatal if operative interference does not take place, as there is no tendency of the bowel to untwist when the canal above begins to distend. These cases are generally rapid in their course. Frequently asphyxiation takes place in the chronic cases, by the enormous distension through interference with the respiratory function by pressure.

In the variety where the sigmoid flexure entwines around the small intestine, Lichtenstein has collected twenty-one cases. This form is exceedingly rapid with the exception of one case, which died in six days; they all died inside of forty-eight hours, a number of which was less than twenty-four hours.

When we consider that variety of obstructure due to strangulation by bands or through apertures, the folly of delay is more noticeable. This variety comprises a great per centage of all ages. Its symptoms are sudden and marked, and there may be in many cases a previous history that will furnish data for diagnosis. What is to be got by temporizing in cases of this kind? Its course is more or less acute and terminates fatally if not relieved.

While special symptoms may be set down as diagnostic of these varieties, he who can possibly diagnose one from the other, with certainty, must be markedly astute and experienced in this special work. Therefore, if it is such a difficult matter, how is the average physician to differentiate? He waits with the expectation that the intussusception may cure itself by one or the other of its modes, or the faint hope that it is a volvulus and may untwist and get well, and while waiting for this his patient may have died from strangulation.

A confusing disease is peritonitis, giving a similarity of symptoms to intestinal obstruction. This is due to extension of the inflammatory products into the muscular coats of the intestines, producing paralysis. As fecal circulation is due to continuous persistalsis, this infiltration produces local stasis. This obstruction is at times so marked that it becomes the predominating symptom. This variety of peritonitis is then secondary to the primary condition of intestinal inflammation; and its extension to the bowel wall aggravates the already existing trouble. Whether peritonitis is idiopathic or secondary to some other cause, is discussed by the medical and surgical portions of the profession. I am forced to believe as my observations and experience increases, that the latter view is the correct one, and in every case there would be found some exciting cause of a surgical nature that gives use to it. The obstinate constipation

that is a frequent symptom of peritonitis shows the action of the inflammation and the reverse condition, when peritonitis arises from true obstruction, shows the intimacy between these two conditions.

As the relationship of these two diseases is so close it is easy to see where direct advantage would be got by operation.

Treves, in speaking of the high mortality in laparotomy for obstruction, lays stress on the fact that operation was not done until the cases were far advanced in a state of collapse; and the gut was in such a condition as to jeopardize the patient's life, and was formerly the last resource. He further says, in proper cases, or where the operation is done early enough, that laparotomy is not such a fatal procedure, and that it is not the location of the trouble, nor the age of the patient that is the factor; it is entirely on the condition of the gut.

The question of the advisability of abdominal section in peritonitis is disputed to-day. There is no question but that abdominal surgery has done more to advance the value of aseptic work than any other form.

The importance of cleanliness has reached its acme, and the technique has increased in proportion. When a student I was taught to look with holy reverence upon the peritoneal cavity, but to-day a pair of clean hands allow of almost anything in this, one time sacred portion of the body. It is an operation that has good grounds for its performance. Would any thinking man hesitate an instant to operate on a patient who showed all the symptoms of marked intestinal obstruction even if peritonitis existed? Here the constitutional condition is being still further lowered by the extension. The relief to the affected bowel would modify the existing general depression, and abatement of the peritoneal inflammation results. Then again if peritonitis was present with existing obstruction, and there was indecision as to which was the cause, is it not justifiable practice to operate? What if nothing is found to exist in the bowel other than extension of the peritoneal inflammation, does not the thorough cleansing and draining of the abdomen relieve the acute inflammation and put the patient into better condition? By this modification is there not less irritation to the bowel? The pseudo strangulation abates, still further relieving the general distress. This is mutual compensation. There is no doubt that the mortality is increased by the endeavor to do too much with the bowel in this condition; all measures should be conservative. The object should be to modify present conditions and correct all abnormal states in the future when everything tends to better results. An artificial anus in preference to resection, if all things were equal, would be better. There is less interference, and time will restore

the bowel tissue to its normal condition, less tissue has to be removed and the walls are not softened by inflammatory products which jeopardize good results.

Laparotomy in peritonitis, simple or purulent, with thorough cleansing and draining, even if obstruction is not present, is to-day the scientific treatment when medication does not give us results in reasonable time. It is good practice, and one that will receive its full credit in time, to use the knife as soon as the case shows marked symptoms, then if any definite change is present, its removal can be done at once. While it is admitted that a certain amount of inflammatory products will be absorbed by the peritoneal surface, there comes a time when its excess must give rise to marked consequences.

What is required of the operator is the next question? Here must of necessity be a familiarity with the technique, and sufficient skill to perform the operation. Technique and skill are expected, for on these depend success. Of all parts of the abdomen, intestinal surgery requires expedition; every moment the intestines are exposed to the atmosphere is that much loss of vitality.

The recent advances made in intestinal surgery have put this surgical work into the safe domain of abdominal surgery. The improvement made is shown when a gastro-duodenostomy that formerly took from two to two and a half hours, can now be done, finished and dressed in thirteen minutes. An acquaintance with the technique can readily be seen is a matter of importance. It is but a few months ago that I saw published an account of a gastro-duodenostomy, which took two and a half hours, in which forty-six sutures were used, and then the paper ends by saying the woman never rallied, but died in a few days from exhaustion. The surprise in this is that the operation was done by the old and tedious method when a better, safer and shorter one had been advised and by repeated experiments shown to be applicable and perfect.

Does this not open a good field for legal action? Could it not be said, and justly, by those concerned, that the proper knowledge and skill had not been shown?

Suppose this had been a case of gunshot wound, by assault, which had injured the pylorus, and gastro-duodenostomy was necessary, and the operation had been performed by the old method, do you not think the defendant would have justifiable ground for argument, and could prove to the satisfaction of the jury that death had been caused by malpractice? Or, if the intestinal tract had been wounded at any part of its length and resection had been done by circular enterorrhaphy instead of anastomosis by approximation or implantation, would it not have the same effect? These are the plain facts that must face us when we undertake this work.

The question of resection of intestine when obstruction has been of considerable duration, and the intestinal tract greatly distended, inflamed and softened, is one that requires considerable attention. This is also the case where gangrene is present either from internal constriction or in reduced hernia. Shall resection be done or conservative means be used by making an artificial anus?

I have heard this subject discussed, and the two opinions expressed by able men. While feeling competent to do a resection by anastomosis with rapidity and skill, I must say that I favor the conservative treatment. I am forced to this by the condition of the parts to be operated on. If you stop for an instant and think of the intestine in obstruction of long standing, you will find the bowel distended to double or treble its ordinary size, and of a consequence proportionately inflamed and softened. There is more or less uncertainty of results, the parts bear no relation to each other, or their normal condition, the tissues are softened and easily injured, the risks of sutures and ligatures holding, the question of the vitality of the plasma that is thrown out, and then the amount of the tract that must be removed to get healthy structure may be entirely out of proportion to the amount that would be necessary if the conservative method was tried.

The surgeon's responsibility is based on his manual skill, judgment and acquaintance with the subject. The moment the knife is used changes the relationship previously existing, and then results are dependent on the opinion that has been given, provided the necessary qualifications are used. The law distinctly says: "He must have the amount and degree of knowledge as advanced by the leading authorities of the day and the results shown by their researches." A strict adherence to acknowledged facts must always keep the operator within the bounds of the law.

It is not discreet to hastily accept the opinion of any one unless the repetition of the idea or method has given results in accordance with previous trials, still it is expected that judgment should not be adversely given because it has the appearance of being not wisely advised. It is our duty to our patient that we should consider any method that improves, though but the slightest, his condition. There is not one here but can call to mind some new theory in the technique of abdominal surgery that seemed far ahead of the then present method; and even some seemed anything but wise. Would it be good judgment or within legal restriction for an operator to resort to methods that are now obsolete, yet giving in their day a certain proportion of success?

The endeavor has been made to show the advantage got by early interference in intestinal

obstruction. This has not been advised without careful consideration and with the thought of the medico-legal aspect of the subject. The latter was not a factor in the years gone by, but to-day, when a certainty of results is known, it changes the relationship of doctor and patient. Mutual self protection will be the thought of the future.

DOES ALCOHOL CONSERVE TISSUE?

An Essay Presented to the Committee on Dietetics at the Forty-first Annual Meeting of the American Medical Association, May, 1890.

BY ELISHA CHENERY, M.D.,

OF BOSTON, MASS.

Does alcohol conserve the bodily tissues in the sense of saving them alive, thus staying physiological decay? Or does it simply check the elimination of what dies and ought to go off? If the former, it is one of the marvelous boons to humanity; if the latter only, it is the worst substance which enters the alimentary canal; for, while other substances, in common with it, affect the nervous system, none other, like it, retards elimination and heaps up effete matters within.

But before studying this question, let us glance at the recent advances concerning the food value of this agent.

For what purpose do we eat and drink? First, for the development and repair of the bodily organism; and second, for the production of force—just the same as we put water and fuel into an engine. The idea of spirituality must here be excluded, whatever our religious notions may be. The body is a material organism, as much so as any other, and equally dependent upon material similar in kind to its own composition, or which it may consume for force. And it does not derive this material from original sources; for as a carpenter does not go to the forest and to the mine for material to build a house, but to the mill and the store where the things he needs are found already advanced in preparation for his wants, so there lies between the body and the simple chemical elements of which it is made, the vast mills of the vegetable world whose business it is to combine those simples of nature into organic compounds which are the simples of animal physiology. Hence the highest efforts of the plant world, is the lowest point at which the animal body can begin its subsistence. Also, all such compounds as the nourishers of the body contain nitrogen and are possessed of various other characters which alcohol does not and cannot have. Hence it was easy for Liebig to reject it *in toto* from the category of nourishments, so that it has never got back again. As to the second class of foods, alcohol has carbon in common with them. But they all undergo decomposition, lose their characters and disappear in the body. Yet they reappear in other forms and in other combina-

tions in the excretions, in which they are cast out. Alcohol, on the contrary, is not changed; as alcohol it enters the body; as alcohol it pervades the tissues; as alcohol it quits the organism. This finding astonished the French savants, Lallemand, Perrin and Duroy, whose crucial tests compelled them to go against all former notions and reject it from the class of force producers, as Liebig had rejected it from tissue nourishers. They, however, committed the error of supposing that it was the business of the kidneys to throw it off. This supposition implies that the kidneys have power over it to do with it as they please. This we deny.¹

Prof. Marvaud, since, went over this ground and confirmed the conclusions of his countrymen so that our own Dr. W. A. Hammond is compelled to say, "Modern science expels it from the category of foods altogether."

Dr. Hammond, however, is unwilling to part with it and so follows it out onto the door-step claiming for it that it is an "accessory food"—substances he defines to be "extremely useful, either as making food more savory, as being promoters of digestion, or as agents for developing nervous or physiological force."²

We make no question as to the other substances he mentions. But of this it can be said that its taste is not particularly agreeable only to those accustomed to it, while as a digester or a producer of force, facts are against it; for it both retards digestion and diminishes force.

Leaving these notions in the past where they belong as disapproved by modern science, we come to the mooted question of our essay—Whether alcohol conserves the bodily tissues?

It was said by Moleschott, "Alcohol is a savings bank for the tissues." Dr. Hammond hitches onto this and asserts that he believes it to be based on truth, stating himself, "Alcohol retards the destruction of tissue." To this he adds the very singular explanation: "By this destruction force is generated, muscles contract, thoughts are developed, organs secrete and excrete. Now, as alcohol stops the full tide of decay, it is very plain that it must furnish the force which is developed after it is ingested." Here is another of his curious statements, "It is not at all improbable that alcohol itself furnishes the force directly, by entering into combination with the products of tissue decay, whereby they are again formed into tissue without being excreted as urea, uric acid, etc." By this only, he thinks, "can be reconciled the facts that an increase of force and a diminution of the products of the decay of tissue attend upon the ingestion of alcohol."³

Now all this is purely hypothetical and imag-

¹ See this at length in "Alcohol Inside Out," by the author.

² Hammond's "Treatise on Hygiene," 1863, page 526.

³ "Hygiene," page 541.

inary, and contrary to our conceived notions of physiology. That alcohol lashes the heart into temporary excitement and arouses some spasmodic muscular efforts, we willingly allow, but that the alcohol furnishes of itself one particle of force must be denied. In appreciable quantities we know it lessens the excretion of carbonic acid and of the urinary compounds, and also the excretion of every other secreting organ. Even the breasts fall behind in the production of their usual solid elements under the presence of alcohol to make milk. Dr. Hammond after adjusting his diet to the amount necessary to preserve his bodily weight, added in the course of five days, $7\frac{1}{2}$ ounces of alcohol. During this time he noted that the pulmonary and urinary excretions fell off. At the end of his experiments he also noted that he had increased in weight $7\frac{3}{8}$ ounces, or about as much as he took of the liquor. Of the two observed facts—the diminished excretion and gain of weight—he says, "They cannot be set aside," and goes on to explain them as follows: "First, retardation of the decay of the tissues; second, diminution in the consumption of the fats of the body; and third, increase in the assimilative powers of the system, by which the food was more completely appropriated and applied in the formation of tissue."⁴

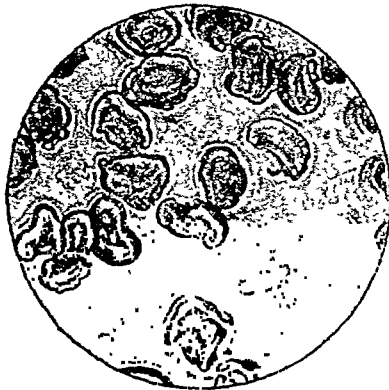
Now we believe his observations to be correct, —that there was diminished excretion and gain in weight, but that he is wholly at sea in their explanation we equally believe, and for the reason that he has wholly disregarded the physiology of the most essential agents concerned—the blood-globules or cells. If we go back of what he has done and study the action of alcohol on these important bodies, we shall find an explanation which is grounded in fact and not gratuitous theory.

We accept, as physicians, that the blood is composed of two parts, the serum and the cells; and that it is the cells and not the serum which absorb and carry the gases. They take in the oxygen for the internal fires and bring out the ashes from the combustion, and are also concerned in supplying the secretory organs with pure blood for their special functions. Indeed they are the most vital working elements of the whole body. When they are all right and well supplied with oxygen the whole body feels the enlivening influence. When, on the contrary, bad air, obstructive diseases, etc., depreciate their quality, the whole organism is languid, weak and ineffective. Much obstruction either to the entrance of oxygen or escape of the carbonic acid, puts life in jeopardy at once.

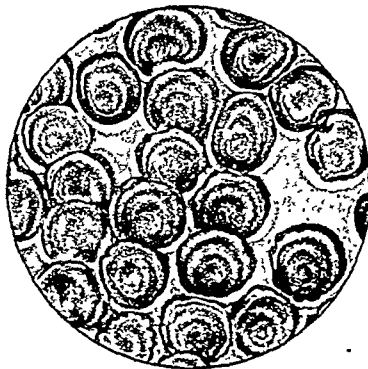
Now what happens when alcohol gets into the blood? Let anybody mix alcohol with blood under a good microscope and see. Some of the cells are broken up and disappear; all the rest

contract, giving up a portion of their watery contents. I have two little kittens' bladders with which I have made many experiments. They are only cells of a larger kind than the globules. I put alcohol and water into them and place them in water; they swell and grow round and full. I put water into them and place them in an alcohol mixture and they shrink; and this is precisely the relation when alcohol is taken into the circulation. It renders the serum an alcoholic liquid in which the watery cells float so that the alcohol approaches them on the outside, drawing out their watery contents, thus shrinking and shrivelling their form.

The pictures here presented were photographed directly from the blood. One shows the cells as they naturally appear under a high power; the other is under the same power but the blood was taken from the arm of a drinking man, then heavily under the influence of strong drink.



Blood-cells taken directly from a man then heavily under the influence of liquor. Tolles' one-fiftieth objective.



Natural blood-cells under the same power.

There can be no mistaking the difference, showing that alcohol does in the body precisely what it will do to the blood on the outside. There is no theory about it. It is a matter of complete demonstration, only the effects vary with the amount and concentration of the liquor. This being an extreme case, a little more would destroy life by wholly destroying the function of

⁴ "Hygiene," page 537.

these cells upon which life depends. Small potations would not make so marked change, and hence be difficult to detect; yet the functions of these cells are known to be depreciated by even small doses.

Now, how comes it that alcohol shrinks the blood-cells, the kittens' bladders, etc.? It is by peculiar osmosis; for it has no attraction for the substance of the animal membrane, at least no attraction as compared with water, hence the water readily passes through the membrane while the alcohol does not; this affinity or otherwise for the membrane being a powerful factor governing osmosis.⁵

Not only does alcohol affect the globules in this peculiar way but it exerts the same kind of influence on moist animal tissues everywhere—the brain, nerves, tendons, muscles—drawing out their water, shrinking, hardening, stiffening them till the hard drinker in middle life, is advanced to the decrepitude of old age.

Looking then upon the shrunken condition of the blood-cell, does anyone require me to say, "They cannot do their work?"

Dr. Hammond was correct in his observation that they did not cast out so much dead waste, in the form of urea and carbonic acid. With the fact of the peculiar action of alcohol on the blood-cells before us, this is just what he had a right to expect. Indeed it could not have been otherwise. As surely as shadow follows upon light, so surely must a depreciation of the character of the globules be attended with a depreciation of their functions in elimination. But his construction of the gain in weight by the liquor into conservation of tissue, is the sublimation of theory: As though by putting a dam across a running brook, we stop the springs which supply the water! As though by getting the ash-men drunk and, finding less ashes going to the dump, we conserve the people's fuel! As though by getting the undertakers off their legs by brandy and because fewer bodies go into the cemetery, therefore, the brandy conserves the health of the city! The blood-globules are the ash-men and the undertakers of the body and can no more do their work when drunk than drunken men can do theirs.

Again, let this use of brandy by the ash-men and undertakers go on for any length of time, what then? There would be an outcry because of obstructed furnaces, and the city would reek from end to end with the dead in our homes and along our streets. Just so every body knows how foul is the breath and the exhalations from every pore of the body of persons who heavily indulge for a time. They get overflowing full of the dead waste which has accumulated within.

Their's is not the smell of living tissue. Their faces swell, their bodies bloat and increase in

weight. Moreover, when these men leave off their drinking and return to their feet and senses, they would spry around and do more than usual the next few days till the city was clean and sweet again. Exactly this is what all observers notice—more excretion after the liquor is withdrawn for a time, till the wastes are removed and the body and breath lose their stench, the bloating goes down, the face and eyes become clear once more. But how about Dr. Hammond's $7\frac{1}{2}$ ounces? Was it not of this sort of tissue, to disappear as soon as it came?

In the face of this series of facts, who can believe in the theory of conservation of living tissue, rather than in the obstructed elimination of dead waste—waste of tissue and combustion—which health demands should be thrown out? The retention of such is a positive hindrance to normal physiology—as inimical to good health as an obstructed stove to a good fire.

Depression of the globules depresses every other vital function—heat, physical and mental force. Dr. Hammond admits that he was not himself as well, and was not inclined to exertion while taking his drams. Considering then the theory of conservation of tissue untenable and contrary to fact—the effect of alcohol on the sensitive blood-globules and their function explaining all the observations—the time has come for us to change our practice to accord with facts or the legitimate, rational deductions from them.

This action of alcohol on the blood-globules opens up a wide field for therapeutics, both as to diet and medicine, which should appeal to thoughtful consideration.⁶

SOME SPECIAL REASONS WHY THE LAPAROTOMIST SHOULD CONSIDER THE MEDICO-LEGAL ASPECTS OF ABDOMINAL SURGERY.

Read in the Section of Medical Jurisprudence at the Forty-first Annual Meeting of the American Medical Association, at Nashville, Tenn., May, 1890.

BY HENRY O. MARCY, A.M., M.D., LL.D.,
OF BOSTON, MASS.

The evidence that the question under discussion is many-sided is shown by the different titles which the distinguished specialists have chosen who are announced to furnish, to-day, contributions upon the medico-legal aspects of abdominal surgery. I have selected a very minor subdivision of the topic, to which I propose to confine my remarks, to wit: namely, the opinions which the great body politic of the profession hold in relation to the justifiability of abdominal operations in general, and the influence which such opinions exert, as commonly expressed in everyday practice.

⁶ See much more of this in "Alcohol Inside Out."

⁵ See this more largely explained in "Alcohol Inside Out."

Twenty years have elapsed since I became a special student of abdominal surgery. Leaders of the profession at that time in New England, without doubt with the most disinterested motives, earnestly gave me warning that if I allowed myself to be known as having special interest in this department of professional work, as viewed from the surgical aspect, it would be fatal to my ambitions as a young practitioner, and justly put me beyond the pale of general medical support. The argument was enforced by the citation of the experience of Sir Spencer Wells, who, not long prior to this period, had visited Boston, with the statement that many leading members of the profession in our goodly city had refused presentation to this distinguished surgeon, upon the ground that the course he was pursuing in the treatment of abdominal tumors was entirely unwarranted and unjustifiable. They emphasized the argument by citing the fact that Drs. Gilman Kimball, of Lowell, and Horatio R. Storer, of Boston, then, and for a long time after, the two leading specialists of New England, were looked upon with general distrust, without the hope of general professional recognition and approval. The only reply to the argument, that modern surgical procedures rendered warrantable a large class of operations hitherto considered improper, was met with the blunt statement "that you will kill your patients, as we have done, and you should profit by our experience."

When, scarcely more than a decade ago, I made application to one of the leading hospitals of Boston for a small ward to be devoted exclusively to the surgical diseases pertaining to women, the answer was, "It has not yet come to the knowledge of the Trustees that there is any demand for the recognition or relief of this supposed class of sufferers."

At about the same date, in another of the general hospitals of Boston, when it was proposed to appoint as a special surgeon in the department of diseases of women a man who is known wherever surgery is read, the entire staff threatened resignation, and caused the withdrawal of the nomination. It would not be difficult to multiply evidence of this character and show that the conservatism of the medical profession in America, especially in New England, had in reality been one of the greatest obstacles in the way of modern progress and reform, notwithstanding we now recount with pride that to American surgeons, under the leadership of a small number of men, whose fame will remain immortal, is accorded the high honor of establishing upon a sure basis gynecic surgery.

In the rapid progress of events the pendulum of public opinion has, in a measure, swung in the opposite direction, especially as represented by the younger and better educated class of practitioners throughout the country. Many of the

seniors; however, hold in ill-disguised contempt the teachings of modern surgery, and do not fail to improve the opportunity, whenever offered, of expressing their opinions in forcible language, and this, unfortunately, more often to the laity. Instances of this are not wanting in the everyday experience of most of us. Some time since a prominent member of the profession, claiming to be a surgeon, declared emphatically "that anti-septic surgery was a nonsensical delusion, but that so much had been said upon the subject he found himself obliged to use carbolic acid, though he hated the nasty stuff, lest he should be thought behind the times, and in case anything went wrong with his patients, he should be held accountable to the courts for not having discharged his obligations in a due and just manner."

Within a few days, in consultation where uncertainty exists in the diagnosis of an obscure abdominal tumor, I proposed an exploratory laparotomy, and was met with the reply, "If you do it you will kill your patient"—the opinion of a surgeon who has made special repute as a medical expert. I offer, in further illustration, the copy of a letter written by a senior member of the profession, and a medical teacher, to a lady who, after having been for a long time under his care without improvement, wrote him that she purposed to change physicians and seek surgical relief. After she obtained from me the opinion that her sufferings, in a large measure, were dependent upon a glandular endometritis following abortion, and that curetting was advised, she communicated my opinion by letter, and received the following reply:

Boston, Sept. 30, 1889.

Dear Madam:—Before you have the inside of your womb scraped out, make your will, etc. It is not a safe operation, and it is quite singular that other eminent doctors have not *done* it. I will bet \$1,000 it won't cure you. Of course you can have it done if you wish.

Yours truly, ———

Notwithstanding such forcible advice the minor operation was performed with satisfactory results. Differences of professional opinion should be expressed freely without reservation on all *proper occasions*, the most earnest criticism upon all doubtful subjects should be thoughtfully made, and reasons for the faith that is in you should be given. The border lines of our knowledge should ever be kept clearly defined. A half truth is oftentimes more dangerous than an error, and, when stated loosely, is sure to come home to discomfit its advocate. The patient has a legal right to demand from his physician only average, reasonable, prudent attention and care, be it medical or surgical.

The specialist, however, assumes a somewhat different relation to his client, who has a right to demand from him the best service which the subdivision of his art can render. The abdominal surgeon is a specialist, in a division of his work,

calling for the highest skill, the issues of which are fraught with the greatest dangers. Unlike many of the problems confronting the general surgeon, the unknown factors of the equation must often be expressed by more than x and y , and when rendered in known terms, demand fertility of resource and promptness of action as in no other branch of surgery. He who is most experienced oftentimes has the greatest misgivings and is harassed with painful doubts as to his best course of action, not unlike the experienced general in the field who necessarily contends with disadvantages incident upon the lack of knowledge of the force and position of his enemy. Like him, he is most successful when promptitude of action is enforced with boldness, courage and caution, the details of which should be as familiar to him as the movements of disciplined troops or the ritual of a church service.

However, like an official, high in office, where there are great responsibilities, attendant upon the discharge of duty, the surgeon is ever open to public criticism, oftentimes most forcibly expressed by those who least comprehend the situation, or have knowledge of the subject.

Viewed from the medico-legal standpoint, abdominal surgery has little to fear except from ignorance on the part of him who practices and of him who criticises. It is the duty of the specialist, in his department, to teach the general profession, in a simple and clear manner, the outline at least of the fundamental factors, upon which are based the measures of surgical relief, although he may not be asked to trace them in their ever-varying kaleidoscopic pattern, as presented in every day practice. Then, and not till then, will the undertone of professional criticism be corrected, to which source may too often be traced the discontent which arises in the mind of the sufferer, and causes him oftentimes to believe that he has been the victim of mal-practice.

Entertaining such an opinion and nursing generally imaginary wrongs, he seeks legal counsel. Listening to a one-sided story, with the thought of prospective fees, the attorney is willing to commence suit, under the encouragement of what Dr. X. has said in criticism, with the statement that it is probable Dr. A. will compromise a settlement rather than be at the trouble and damage incident upon a public trial. Such cases are not rare, and the attorney is right in the supposition that the surgeon is especially sensitive in regard to his reputation, who willingly sacrifices to avoid notoriety. Thus a species of blackmailing has developed in all the great centres of population.

A noteworthy illustration of late experience of our friends furnished in the Baker, of Boston, several points of which case are worthy of comment. For one of which case to Dr. Baker good and sufficient reason, he ad-

vised in the case of a fever sufferer, the removal of the ovaries and tubes. After a careful explanation of the condition and reasons, she was admitted into a charity hospital, and before the operation signed an agreement assenting thereto and holding the doctor harmless of the results. Recovery followed, and, in due time the patient was discharged. Sometime later, there developed in the line of the abdominal wound, a ventral hernia, which at the time she consulted me, was fist-size. Having been sent to my hospital by a wealthy and distinguished gentleman who had become interested in her condition. I advised her to return to Dr. Baker for further treatment, but she expressed a desire to be under my care for the particular condition which caused her present suffering. However, before completing arrangements for operation, it transpired that it was her purpose to secure my opinion, as to the exercise of proper skill and judgment at the former operation, she stating incidentally, that she had consulted one or two other surgeons, well known to me, who had considered the results of the operation questionable. Here the interview ended. Sometime later I was requested to appear in her behalf, as an expert, with the statement that a suit had been entered against the hospital and Dr. Baker for large damages. This invitation I promptly declined. By such adroit measures the prosecution sought to obtain expert testimony, and it was only after three long-continued and expensive trials, subjecting Dr. Baker to a large expenditure of money, vexation of spirit, and loss of time, that he was acquitted of blame. It was held by the court that the written agreement, entered upon prior to the operation was not in itself sufficient; the plaintiff claiming that she did not have the proper understanding of the character of the operation, and its possible attendant dangers and results. Although such an agreement is considered by many as a proper precautionary measure, it may, perhaps be questioned, if in some instances at least, it might not raise doubt and distrust in the mind of the patient, reasoning that the doctor himself was not quite clear in the premises, and thus sought to throw the burden of responsibility of doubt upon the sufferer, which he himself should justly bear. This construction at least might be placed upon it by the average jurymen, enforced, as it is sure to be, by the sympathetic plea of the eloquent attorney.

I have never deemed it wise to ask it in my own experience. I understand that in some of the large public hospitals of Massachusetts, there is an incorporating clause that any person seeking the advantages of treatment therein, is debarred from legal redress from either the corporation or attendant physician or surgeon.

I cannot doubt that this is a wise, precautionary measure. I suppose we would all agree that

an operation of such major importance as a laparotomy should be undertaken only after a careful consultation with one or more surgeons, and that in the presence of friends and competent witnesses, the measures determined upon should be carefully explained in regard to the dangers involved and possible subsequent contingencies, even if the *hoped-for result follows*, and praise is justly awarded the skillful operator, the lesson of thoughtful prudence will not be lost, but on the other hand, be of great value to the operator, adjudged considerate as well as skillful. In the advent of disaster, it will prevent unjust criticism, and furnish our best protection in defense before the courts.

When doubts arise as to the advisability of operative interference, these should be clearly stated to the patient and friends, the operation should be distinctly classed as permissive, rather than advised, and after a proper explanation of all its details, the final decision should be left to the sufferer and her friends, and not determined by the surgeon, or performed without their knowledge and full consent.

With such precautions properly enforced, there is little liability of legal complications, following operations in the hands of skillful surgeons. But it must never be forgotten that the first duty of the expert is to carefully consult with and secure if possible, the distinct approval and co-operation of the attending physician or physicians. By such a course professional jealousies are, best of all, allayed, interests harmonized, and coöperation for an honorable protection secured.

THE PATHOLOGY AND TREATMENT OF SYCOSIS.

Read in the Section of Dermatology and Syphiligraphy at the Forty-first Annual Meeting of the American Medical Association, at Nashville, Tenn., May, 1890.

BY JOHN V. SHOEMAKER, A.M., M.D.,

OF PHILADELPHIA, PA.

Pathology.—In order clearly to comprehend the pathology of sycosis it is of advantage to consider the structure of hair, the mode of its growth and nutrition.

Hair is a modification of the epithelial layer of the integument. The root of each hair is lodged in a little pit called the hair follicle. The follicle descends through the substance of the skin into the subcutaneous connective tissue. Its orifice is shaped like a funnel, the narrower and lower end of the funnel being known as the neck. Below the neck the follicle widens and terminates in a bulbous expansion. The proper wall of the hair follicle belongs to the corium and is divided into three layers: an outer, a middle and an internal. The outer is the thickest and consists of connective tissue fibres disposed parallel to the long axis of the follicle. It supports a small artery

and vein and nerve fibres. The middle layer contains smooth muscle cells. The inner layer is structureless and transparent and is continuous with the basement membrane of the corium.

A small oval or pear-shaped body projects into the cavity of each follicle. This body is called the hair papilla, is composed of connective tissue fibres and corresponds to the other papillæ of the corium. It is continuous with the outer or fibrous layer of the follicle and contains, according to Biesiadecki, two minute arteries, two or more veins and medullated nerve fibres. Its upper surface, which projects into the bottom of the follicle, is covered by the lining membrane of the follicle. This lining membrane is formed by cells derived from the deeper layers of the cuticle.

The lower portion of the root of the hair expands to form the hair bulb which rests upon and embraces the papilla. The bulb is composed of cells which resemble those of the rete malpighii or stratum mucosum, the lowest of the four epithelial layers.

The root and shaft of a hair consists of a medullary substance and a cortical substance, invested by the hair cuticle. The latter is formed by a single layer of non-nucleated hyaline scales which overlap each other. External to the hair cuticle are found an internal and an external root-sheath. The inner root-sheath is continuous with the stratum corneum or external layer of the epiderm. The external root-sheath is simply another name for the internal layer or epithelial lining of the hair follicle, and is derived from the rete malpighii or stratum mucosum.

It will thus be seen that the nutrition of the hair must depend upon the follicle in which it is lodged and especially upon that portion of the follicle called the papilla. The papilla, however, is but an expansion of the outer layer of the hair follicle and the vessels which surround the follicle and those which enter the papilla are in direct communication. A basement membrane is all that intervenes between the vascular papilla and the bulb of the hair. The hair bulb contains columnar and polyhedral cells, united by cement substance. These cells resemble those of the stratum mucosum, are continuous with those and with the outer root-sheath which is, as I have said, an inversion of the stratum mucosum or a dipping downward of that layer in order to line the hair follicle. The cells of the bulb actively reproduce themselves, the older ones being constantly forced upward by the development of the lower. As they ascend they become gradually transformed into the component cells of the hair root and shaft. Unna has shown that in certain cases the hair may become detached from the papilla and ascend within the follicle to a point just below the opening of the sebaceous gland, deriving its nutrition meanwhile from the cells of the outer root-sheath.

Wertheim, in 1861, and Köbner in 1864, reported the result of their microscopical examination of hairs taken from the victims of sycosis. But, however interesting and, to a certain point, instructive such inspection may be, it obviously cannot, in itself, explain the morbid anatomy of the process. That the cells of the hair bulb are saturated and swollen with inflammatory products can be readily demonstrated. The question then presents itself, whence are these products derived? For the solution of this query we are indebted to Dr. A. R. Robinson, of New York. This author's discoveries depend upon the examination of sections of diseased skin removed from patients afflicted with sycosis. By such a method he was able to study the malady in its different stages. The hair, containing neither blood-vessels nor nerve-fibres, cannot be the seat of the inflammation, which must, therefore, be sought in the part from which the hair immediately springs, viz., the follicle. It is, in fact, in the vascular, external layer of the follicle, that the process has its origin. This outer wall of the follicle belongs to the corium or true skin and is, with the papilla, the source from which the hair draws its nutrient supply. Sycosis, in other words, begins as a peri-folliculitis; that is, the vascular loop which is supported upon the outer wall of the follicle, which it surrounds, becomes engorged, and all the phenomena of inflammation ensue. These phenomena—the active hyperæmia, disordered innervation, transudation, exudation and emigration of white cells—are essentially the same in every tissue and need not be rehearsed before this audience. Suffice it to say that a sero-purulent fluid is soon poured out by the vessels of the follicle and the papilla; that this fluid, after saturating and penetrating the internal layers of the follicle together with its lining membrane (the external root-sheath) obtains entrance into the cavity of the follicle. Once within the cavity, the cells of the hair root are permeated and swollen. Eventually the root becomes detached from its sheaths. As the fluid accumulates within the follicle, it is forced to the surface, which it gains by dissecting its way between the hair root and its sheaths. In other cases, again, it breaks through the epidermis near the hair.

The grade and the extent of the inflammation will account for the macroscopic appearances of the disease. If the process be intense the hair root and its sheaths, with the papilla, are destroyed and permanent baldness is the result. At times the action is so high that the entire follicle, the sebaceous and sudoriparous glands and the substance of the corium itself, are broken down and replaced by cicatricial tissue. As a rule, however, the papilla escapes destruction and the hair is consequently reproduced upon subsidence of the inflammation.

Treatment.—Without trenching upon the subject of etiology, I will confine myself to the statement that the predisposing cause is undoubtedly depressed vitality, however produced. Nervous exhaustion due to prolonged anxiety or dissipation, to excessive physical exertions and to chronic impairment of digestion are present in most cases of sycosis and certainly coöperate in its production. This being the case it follows that, although local treatment is, indeed, of paramount importance, yet the value of constitutional measures should not be overlooked. It is often of service to begin the course with a mercurial cathartic. Every means should be made use of in order to invigorate the system. The appetite and digestion should be improved by the administration of a mineral acid combined with a bitter tonic, such as chiretta, gentian, or cinchona, with the addition of some nux vomica, hoangan or strychnine. The diet should be judiciously supervised and should consist of easily digestible and nutritious substances. The action of the bowels and liver should be carefully watched. Fresh air, sunlight and cheerful society should lend their aid. Where debility is marked massage and static electricity exert a very beneficial effect. Arsenic is frequently of decided service. In cachectic subjects, Donovan's solution in doses from three to ten drops three-times daily is of positive utility. If the patient is anæmic iron should be administered, either alone or in combination with arsenic, phosphorus and cod-liver oil. I have often obtained excellent results from the iodide of iron given in doses of 2 or 3 gr. in pill form. If suppuration is excessive the phosphates or hypophosphates, chlorate of potassium or sulphide of calcium will be found beneficial.

The local treatment of the acute stage should be depletory or emollient. Here the question at once confronts us, what shall be done with the hair? Shall it be shaved or plucked out by the root in order that our remedies may come into the most absolute contact with the surface? Now, although sanctioned by the advice of Hebra and practiced by many, perhaps most dermatologists, I unhesitatingly affirm that I have witnessed better results by merely clipping the hair as short as possible with scissors. Shaving is an excessively painful, not to say brutal treatment, and its advantages are by no means commensurate. The passage of a razor over an acutely inflamed surface, and the division of the coarse hairs of the beard must certainly aggravate for a time the activity of the inflammation. The final results never compensate the harshness of the method. I may say nearly the same as regards epilation. In the beginning of the disease the hairs are tightly compressed and their extraction is positively painful. Whereas, in the natural course of the affection, they soon become loosened when they may be easily and painlessly plucked.

When the hair has been closely cut we have our choice of a host of applications. These may be used in the form of lotions or ointments. If scales or crusts have already formed, they should be removed by means of a poultice or an oil dressing. In some patients ointments, in others lotions are found more serviceable. Individual temperament or susceptibility, also, may indicate the use of a warm or a cold lotion. A weak solution of hamamelis, lead water and laudanum, a solution of acetate of lead with sulphate of zinc, are among the most useful agents. A dilute solution of corrosive sublimate—from $\frac{1}{2}$ gr. to 1 gr. or $1\frac{1}{2}$ gr. to the ounce—is likewise beneficial. A bland oil, such as olive oil, cod-liver oil, fluid oleate of mercury, or oil of ergot, are very useful in this stage. These oils may often be advantageously combined with emollient or narcotic substances, such as arrowroot, carbonate of zinc, carbonate of lead, opium, arnica or belladonna. An ointment containing zinc, lead, or bismuth oleate is serviceable, as is likewise calomel or white precipitate in the proportion of 10 grs. to the ounce of lead, simple cerate, cold cream, cucumber or oxide of zinc ointment.

Local depletion is often of signal advantage in the acute stage. The lesions should be freely opened with the knife. The serum and pus are evacuated, the congested vessels relieved and the circulation in the parts is stimulated. The absorbents are likewise stimulated. Depletion should be performed twice or thrice a week, bleeding should be encouraged by sponging the surface with warm water, after which the medicament, loction, oil or ointment should be applied anew. Unna asserts that the advantage of depletion is only temporary, that it creates an absorbent surface which invites a renewed attack of the disease. I have never, however, witnessed any evil results from the practice.

As the disease progresses the violence of the initial symptoms abates and the local applications should assume a more stimulant character. The oleate of mercury, of from 5 to 20 per cent. strength, the nitrate of mercury ointment, 1 to 3 drachms to the ounce of zinc ointment or other bland excipient, sulphur, tar, beta-naphthol, resorcin, ichthyol, corrosive sublimate, salicylic acid, boric acid in ointment form, are then found useful. Veill has recommended a 2 per cent. alcoholic solution of pyrogallie acid, and Professor Pick, of Prague, a solution of tar in alcohol. Green soap, nitrate of silver, caustic potash, tincture of iodine and other strong cauterants are also sometimes applied with benefit to the lesions of obstinate cases, although I have seldom had occasion to resort to such heroic measures.

Sycosis is very apt to be a stubborn affection. Relapses are frequent, especially if the occupation or habits of the patient are of a nature to cause irritation of the skin. In order to guard against

relapses the patient should not be dismissed until entirely cured. Bockhart advises that for some time after active treatment has ceased the patient should wash his face once or twice daily with a 1 per cent. sublimate solution.

SOME MEDICO-LEGAL QUESTIONS THAT ARISE FROM THE MISTAKES OF ABDOMINAL TUMORS FOR PREGNANCY.

Read in the Section of Medical Jurisprudence, at the Forty-first Annual Meeting of the American Medical Association, Nashville, May, 1890.

BY DAVID W. YANDELL, M.D.,
OF LOUISVILLE, KY.

Some practical questions arise from the following cases:

A., æt. 19, had an abdominal tumor of four months' standing. Two physicians, after a long and careful examination, pronounced it a gravid uterus. This was indignantly denied by the patient, and the most deplorable family feeling and bitter feud followed. Eight months later the mistake was discovered, and an ovarian tumor was removed weighing 119 lbs.

B., a widow, married four years without issue. Twelve months after widowhood she was sent to me to be operated on for ovarian tumor. Two months later she was delivered of a healthy boy. The mistake of the physician in the first case caused the most poignant grief to a large number of excellent people. The mistake of the physician in the second case saved the woman from disgrace, for being sent a long distance from home to have the tumor removed, the labor was kept secret.

C., a healthy woman, married an invalid physician. Three years later, without having had issue, the couple separated. Twelve months later she married a robust, vigorous man. Five months after this the abdomen began to enlarge. She was rejoiced at the thought of becoming a mother. She had, or thought she had, all the usual symptoms of pregnancy. Her menses ceased, she consulted her family physician and engaged his services for the coming event. Eight months passed, when the abdomen had acquired enormous size. Another month passed; what was claimed to be labor pains set in; both the nurse and doctor were summoned. While the latter was making an examination a severe pain was followed by a great gush of waters, the abdomen collapsed and the supposed pregnancy was ended.

D., a young woman, newly married, had at expiration of five months all the natural and physical signs of pregnancy. At the expiration of what should have been the full term, she had a gush of water without a fœtus, and a collapse of the abdominal walls, and so the case ended.

The question of responsibility in the diagnosis and treatment of such cases, is one in which the best judgment and skill may be mistaken. Some general facts which should govern in these cases are as follows:

1. The diagnosis must rest on a group of well observed facts which, in all ordinary judgment, can admit of no other possible meaning.

2. If the facts are uncertain and the conclusions admit of a doubt, it is the duty of the physician to submit the question of responsibility to the family and share it with some one, otherwise he will be culpable.

3. The physician is only responsible for the exercise of the best judgment and skill he may possess. He cannot be accountable for errors of judgment, unless they were from want of proper care and diligence, which were in his power to have used. He is also bound to anticipate and provide for the possible consequences which might follow from a mistake of diagnosis and treatment.

4. The physician is expected to use all care and diligence, and take time for reflection in determining the diagnosis; which should be based on the preponderance of facts, and their most probable natural meaning. The physician is held liable if he neglects the exercise of ordinary skill and forethought in both the treatment and counsel to the case.

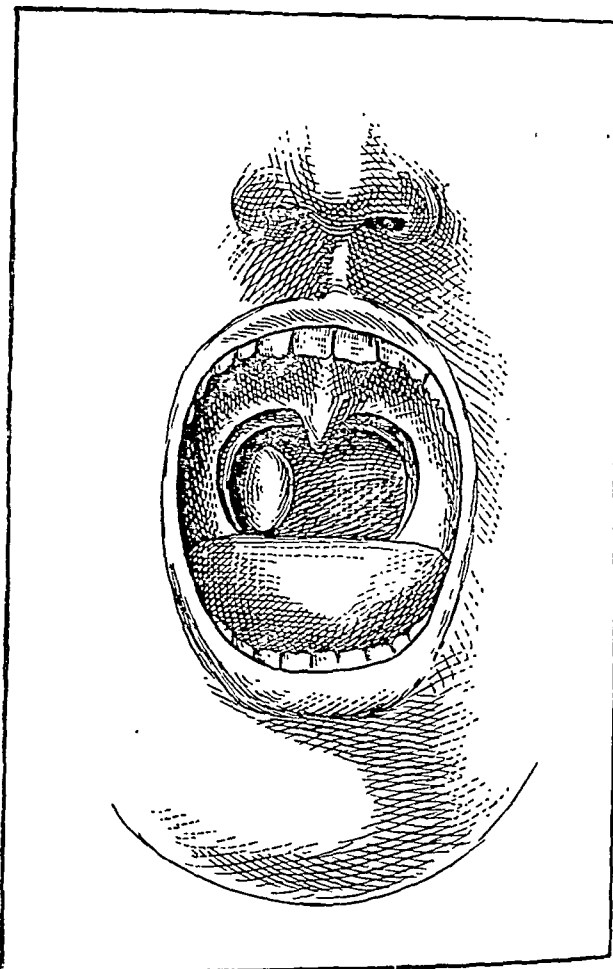
5. Finally, the physician is liable if he subjects the patient to peril of life or reputation, by a false diagnosis or operation. If he assumes a certain amount of knowledge, that is not sustained by the facts both in this and other cases, he is liable. The physician who undertakes the care and treatment of cases of abdominal tumors, is assumed to possess skill, and exercise care beyond that of the ordinary physician. He is liable for carelessness, neglect, ignorance, and omissions to study the facts in such cases carefully, and make a reasonable diagnosis, on which to conduct a reasonable treatment.

A PHARYNGEAL ANEURISM.¹

BY C. W. RICHARDSON, M.D.,
OF WASHINGTON, D. C.

The case I present for your consideration to-night is one of unusual interest. I exhausted every means within my power to induce the patient to present herself before you, but failed to accomplish the desired result. My efforts in this connection were so persistent as to drive her from me. It is totally unnecessary to give any account of history, as it bears little upon the subject in hand. The woman is Irish, single, 35 years of age. She consulted me to obtain relief from excessive dryness of pharynx and "stuffy" sensation in nasal cavities. Exposure of mouth made

manifest a large pharyngeal cavity, the walls of which, in all directions, presented the evidences of marked glandular destruction and atrophy of the mucous membrane. That which especially attracted my attention in the pharyngeal cavity was a prominent bulging mass to the right of the median line, typically represented in the drawing I here present. The life-like character of this tumor cannot be represented by the pencil of the artist.



I will attempt to describe it: The mass extends from a little to the right of the median line to the right lateral pharyngeal wall, and from the level of the base of the tongue to a line corresponding to the lower border of the soft palate. Its length is about two, its breadth about one and a half centimetres, while it protruded into the pharyngeal cavity about four millimetres at the point of greatest protrusion. The mucous membrane covering, and that adjacent to the tumor does not differ in any respect from the mucous covering of the remaining portion of the pharyngeal cavity. A point noted almost simultaneous with the discovery of the tumor was that it pulsed, and that this pulsation was synchronous with the action of the heart. A very distinct and high pitch bruit was heard upon application of stethoscope to right side of neck. Pressure upon

¹ Read before the Medical Society of the District of Columbia.

common carotid in the neck caused the tumor to diminish in size, with complete cessation of pulsations. The blood seemed, just beneath the mucous surface, as though at each pulsation of the heart the swelling must rupture. Patient noted pulsation, and stated that the "thumping" was very annoying to her.

The existence of an aneurismal dilatation of a pharyngeal artery is something of unusual interest, and I present the case in order to excite discussion and obtain from the anatomist some idea as to which of the numerous small arterial twigs it might belong. I was at first inclined to believe, from its large size, that it must be from a vessel of some magnitude. What artery of this nature is here distributed? I thought it might be of the internal carotid, the artery having an anomalous distribution; this would require a marked displacement. It could also be one of the branches of the ascending pharyngeal having an unusual size, presenting that anomalous deviation from the type that we occasionally observe in other arteries, and this had undergone an aneurismal change.²

NOTE.—While the proof of the above article was passing through my hands, I noted an article entitled "Eight Cases of Large Pulsating Arteries on the Posterior Wall of the Pharynx," by J. W. Farlow, M.D., of Boston.³ In this article Dr. Farlow calls attention to his having previously reported five cases of the same character.⁴ These escaped my notice. The eight cases here reported are in all probability the same, though less marked, as the condition above mentioned; although the histories are so briefly given as to leave some doubt.

MEDICAL PROGRESS.

ADDISON'S DISEASE, WITH CANCER AND TUBERCULOSIS OF THE SUPRARENAL CAPSULES.—FLEINER (*Berl. Klin. Wochenschr.*; *Schmidt's Jahrbucher*) gives the history of a man 44 years of age, with tuberculous heredity, who presented, after exposure to cold in October, 1888, brownish-yellow spots on the back and breast. From the middle of April, 1889, increased weakness, dyspepsia, and impotence, with general darkening of the skin. Upon his reception in the hospital, the skin was of a brown color throughout, the nipples dark brown, and the axillæ and genitals nearly black. In the mucous membrane of the mouth brown spots were to be seen. In the umbilical region was an uneven, hard, immovable tumor, painful on pressure. From the nature of the symptoms, the muscle

weakness, dyspepsia, pigmentation, wasting, and the situation of the tumor, in the retro-peritoneal lymphatic glands, a diagnosis of morbus Addisonii was made, the tumor probably involving the suprarenal capsules, especially the left, and the larger ganglion of the abdominal sympathetic. The nature of the growth, whether tuberculous or cancerous, could not be determined. The gastric symptoms increased, the tumor enlarged, and the skin became darker. In the middle of October jaundice occurred, and with it enlargement of the liver. Death took place at the end of the month, about one year from the beginning of the trouble. The post-mortem examination revealed carcinoma of the posterior wall of the stomach, extending to and completely involving the left suprarenal capsule. The right capsule was normal. The right sympathetic was normal from the upper cervical ganglion, to where the splanchnic is given off. From that point the sympathetic as well as the splanchnic were thickened, and lost themselves in the tumor. The right semilunar ganglion was also imbedded in the mass, and could not be examined. The upper ganglion of the left sympathetic was spindle-shaped, having a length of 3.2 cm., and a circumference of 5.5 cm. From this enlargement the cervical sympathetic extended upward, unchanged, to the lower cervical ganglion. Two ganglia just above the left adrenal were enlarged, infiltrated, and changed to hard, irregular tumors. The celiac plexus was involved in the growth and could not be dissected out. No changes were observed in the brain or spinal cord, with the exception that the ganglion upon the last left dorsal and first lumbar nerves, were larger and more pigmented than those upon the right side.

The above case lends additional weight to the theory that Addison's disease is not alone an affection of the suprarenal capsules, but also of the abdominal sympathetic. Tizzoni was of the opinion that the disturbance in the capsule was caused by changes in the central nervous system, through the medium of the sympathetic. He found by removal of the capsule in rabbits a degeneration of the medulla, especially the floor of the fourth ventricle, and changes in the central canal of the cord, which extended through the white commissure to the grey matter. Degeneration of the peripheral nerves was also found.

The lesions, which were mostly situated in the grey substance and pia, were accompanied by congestions, changes in lymphatic circulation, alterations in the walls of the blood-vessels, and often infiltration of leucocytes containing blood coloring matter. To the present, similar changes have not been found in men, but the observations of Tizzoni should ever be in mind, and the entire sympathetic should be examined in every post-mortem examination of Addison's disease.

To the interesting observation of Fleiner we

² For discussion see Society Proceedings.

³ Boston Med. and Surg. Journal, July 3, 1890.

⁴ Boston Med. and Surg. Journal, March 31, 1887.

may add those of Lancereaux (*Arch. gén. de Méd.*, January, 1890). The first was upon the body of a woman 77 years of age, who presented the typical symptoms of Addison's disease: loss of appetite, weakness, and bronzing of the skin. The post-mortem examination showed enlargement and degeneration of the adrenals, swelling of the left semilunar ganglion, which was partly embedded in the mass surrounding the left adrenal. The trisplanchnic extended to the posterior border of this mass, where a thick fibre extended from the lower horn across the aorta to the lower horn of the right semilunar ganglion. With the microscope tubercular infiltration of the left semilunar ganglion was demonstrated.

A second case presented the bronze skin, with tuberculosis of the right suprarenal capsule, the left not involved. The bronzing of the skin could be referred to the capsular affection; the prolonged vomiting was attributed to changes in the abdominal sympathetic; a contracted kidney with uræmia was also present in this case.

A third case, that of a woman 34 years of age, suffered from severe vomiting and great prostration for eighteen months, and died with all the symptoms of Addison's disease, *excepting the bronzing of the skin*. The post-mortem examination showed tubercular infiltration of the apex of each lung and of the upper portion of the pancreas. Both suprarenal capsules were infiltrated with tubercle, were hard, yellow, and contained a caseous mass surrounded by a greyish connective tissue. Many branches of the solar plexus were softened and covered with small caseous masses. The left semilunar ganglion was degenerated and attached to the adrenal; the right was embedded in a yellow caseous mass, otherwise normal. Under the microscope the ganglion cells were much pigmented, but not degenerated. The left adrenal was completely destroyed by the tubercular process; the right was less involved.

A fourth case, that of a man of 57 years, revealed, post-mortem, the left adrenal, the size of a plum, indurated, the medullary substance yellow and swollen, the cortex slightly changed, and the capsule thickened. Microscopic examination showed a centre infiltrated with subryonal cells, surrounded by a zone of caseous degeneration. The right adrenal was smaller, and likewise infiltrated. The right semilunar ganglion and its branches were apparently normal, but on microscopic examination degeneration of the suprarenal nerves was found.

The two last cases present the typical symptoms of Addison's disease, notwithstanding the failure of skin pigmentation. The prostration, heart weakness, with frequent pulse and accompanying fall of temperature, as well as the digestive disturbances, terminal coma, and the changes in the adrenals, all point to this condition. The bronzing of the skin can not be re-

ferred to the changes in the adrenals, but rather to the degree or location of the lesion in the abdominal sympathetic. The explanation why Addison's disease is so frequent in tuberculosis of the adrenals, and seldom in other affections of those organs, is to be found in the tendency that the tubercular process has to affect and extend itself along nerve fibres. Changes in the adrenals have no immediate relation to the development of Addison's disease, but comes from a direct infiltration along the fibres of the abdominal sympathetic.

STERILIZATION OF MILK.—The question as to whether young children are more affected by the number and products of bacteria contained in cow's milk, than by the chemical differences between it and human, is perhaps still *sub judice*. Nevertheless, the researches of Vaughan and others show that dangerous contaminations are frequent, in the commercial handling of this necessary article of food.

EMMA STRUB (*Centralblatt für Bakteriologie und Parasitenkunde*, Nos. 2, 22, and 23, 1890) has added a valuable and laborious study to the literature of pædiatrics;—for this subject will always have its greatest interest in its relation to the feeding of young children. Examinations were made upon milk treated in Soltmann's, Bertling's, Stadtler's, Eglis', and Escherich's apparatus, and also after a method devised by Dr. Gerber. From three to six trials were made with each apparatus, followed by gelatine plate cultures, made by mixing 1 cc. of milk with a definite quantity of gelatine, and pouring it over a glass plate. The number of bacteria were estimated by counting the number of colonies that developed. The results did not vary greatly with the different apparatus, but it was found to be impossible to thoroughly sterilize milk, as on an average from 100 to 200 bacteria were present in each cc., even after prolonged boiling. The bacillus mesentericus vulgatus proved to be the most resistant of all forms usually found in milk; the spores of this germ surviving even fractional sterilization when carried out in Koch's apparatus. This necessitates the application of a temperature so high, and for such a time, that both the quality and taste of the milk is greatly changed. In the ordinary apparatus for sterilizing many pathogenic forms are destroyed, as was demonstrated upon the anthrax bacillus, and the total number of bacteria was greatly lessened. While it is true that all bacteria are not destroyed by boiling in this manner, yet some of the more destructive may be killed, and the protection afforded by sealed jars treated in this way is certainly very great. Notwithstanding the unfavorable results here obtained, in *absolute sterilization*, it may be true that these methods add greatly to the safety of infant feeding.

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SATURDAY, AUGUST 2, 1890.

THE FUTURE OF THE AMERICAN MEDICAL
ASSOCIATION.

The development of the American Commonwealth is without a parallel in the history of modern civilization. Within the present century, and largely within the last fifty years, a continent has been reclaimed and its population increased from three, to between sixty and seventy millions of people.

The home-born increase has been immense, and the currents of immigration have centered upon these shores from nearly every quarter of the globe. Of necessity our conditions have been unique. In the development of institutions, the work has everywhere been one of creation and not of revision, and temporary imperfections must be incident to such a growth. In making provision for the absolute and immediate needs of the people, it was seldom indeed that the ideal could be realized. The obvious duty of the hour while striving for the attainment of the ideal was, in the meantime, to utilize the best we could command. Thus in matters of legislation, in public and private improvements, in the founding of all social, literary, educational, religious and professional organizations, these all have required to be wrought out on this virgin soil, with such material as was at command.

But though imperfections and even crudities have been incident to our beginnings, men at home or abroad greatly mistake the genius of our people, and misread their record already made, if

they imagine that they are, or will be, satisfied with present attainments. It must be appreciated at home and elsewhere, in any attempt to forecast the future, that the American spirit is intensely aggressive, and that this impelling power guided by intelligence and controlled with wisdom is destined, and that rapidly, to work out grand results. This will be especially true in the domain of medicine. There was a time in our history when highly educated practitioners were few in number, and the needs of the masses of the people were cared for as best they might be by men of moderate attainment. But this was not long to be. In answer to the pressing demands, a hundred medical colleges have been created, and most of these for the time have served a useful purpose. The survival of the fittest will be the future history of these, and of those which are to follow.

It is a fortunate fact, that at the present hour there is an imperative demand in all parts of our country on the part of the medical profession for higher standards of education, and for rigid restrictions upon medical practice. Many of our State legislatures are in full accord, and each year is witness to the progress made in the furtherance of legitimate medicine. Most of our colleges are alive to these demands. Their courses of study are greatly extended, the facilities for clinical teaching, in hospitals and in laboratories, are more and more developed, and the years of college teaching lengthened, until in a number of our foremost schools the opportunities for obtaining a thorough medical education rival those in any other land. We write this not in any boastful spirit, but advisedly. Nor has the profession been remiss in the work of developing medical organizations. In nearly every one of our forty-four States a State Medical Society has been formed. In the older States they date far back in the century; in the newer ones they are yet in their young life. In each of these State societies there is an able representation of medical men. Their organizations are being more and more perfected, their professional work as represented in their proceedings is constantly increasing in value, and each of these States is more and more to feel their influence for good in matters of medical legislation.

We have made this brief reference to our past history, to the status of our medical schools, and

to our medical organizations, in order that we may come to the consideration of the important question of the future of our Medical Association. Its past history has been one in which a wise conservatism has governed. To this we owe our present well-being. We should be as prudent in our counsels, and as wise in future action. But the very nature of our environments is such as to compel us to be progressive. Our present organization and its methods in the past have, beyond question, been the best we could command. But times are changing. The profession is able to command more means; a higher education is everywhere obtaining. The facilities for travel and for intercommunication are marvelously increased. The courtesies of a common brotherhood are seeking expression everywhere. At the seaside, in our mountain resorts, and in our larger cities, the meetings of medical men are without number. This is well; and select coteries and special organizations are well, but they do not, and cannot meet the needs of our seventy thousand physicians.

The great question of the immediate future is as to the possibility of unifying the State Societies, and through them the local organizations which they represent, until, in one grand central organization—THE AMERICAN MEDICAL ASSOCIATION—there shall be a convergence of medical interests and medical influences that shall embrace the continent.

HYDROPHOBIA EPIDEMICS.

The *Medical Record* calls attention to the increase in hydrophobia scares since the establishment of the Pasteur Institute in New York, and pertinently asks if the aggregate suffering in the community is not increased; granting, even, that the lives of the few undoubtedly infected with rabies are saved.

Fear and expectant attention have had much to do with the spread of epidemics, and in no condition are these factors of more importance than in rabies. The frightful character of the developed disease, the extraordinary symptoms popularly accredited to it, and its certain fatality, make this a disorder that the public should hear least about. Heartily in sympathy as we are with every effort to advance knowledge, and with every honest experiment, we cannot disapprove

of the methods of PASTEUR, since they have been endorsed by so many eminent in the profession; but we do most earnestly protest against the faronade in the daily papers that has attended the opening of the Pasteur Institute in Chicago. Not for a moment do we question the motives of the gentleman at the head of this enterprise; yet we doubt the propriety of allowing his name and methods to be heralded in the daily papers, in terms but little different from those employed by advertising quacks in the same sheet. All necessary publicity can be secured through the medical journals and the profession, and in the end more accurate results would be reached, for the pseudo-epidemics that cast such discredit upon the statistics of this work would be eliminated.

WHEN JUDGES DIFFER.

We are all familiar, *ad nauseam*, with the much misquoted adage about the differences of opinion among physicians. The adage is generally sneeringly applied to our own profession, but erroneously so since the origin and early history can be proved to have been entirely a theological one. But still another view of the case is put upon the question by an article in the *British Medical Journal* of June 14, which takes the sting out of the sneer, if we allow, for the sake of argument, that the adage is relevant to medicine. The *Journal* says that the Lord Chancellor, Lord Halsbury, at a recent public meeting in London, went so far as to make it a particular merit of the judges, and one of their claims to the public esteem which they so justly enjoy, that they spent nearly half their time in "differing from their learned brethren." Hence it will be possible for us, in the future, to spurn the distasteful accusation by a two-fold parry: first, by showing that the saying never was aimed at medicine at the time when it was first invented; and, second, and even if physicians do have their discrepancies, they cannot be said to spend "nearly half their time" upon their differences, as has been said of a body of logicians—judges of the British Bench—as eminent as the round globe we inhabit can produce, and that, too, said of them *to their credit*. Let us hear no more about the differences of the doctors of medicine, *to their discredit*.

EDITORIAL NOTES.

CORRECTION.—Among the editorial notes, on page 27 of *THE JOURNAL* for July 5th, it was stated that Dr. T. G. Richardson, one of the ex-presidents of the American Medical Association, had resigned his connection with the Medical Department of Tulane University, at New Orleans, and removed to Washington, D. C. So far as relates to his resignation of the Chair of Surgery in the University, the statement is correct. He resigned on account of continued ill-health, but he still retains his home in New Orleans and a lively interest in the medical institution with which he has been connected so many years.

THE MONTANA MEDICAL ASSOCIATION.—This Association met at Helena on June 5. The following officers were elected for the ensuing year: Dr. J. S. Hammond, of Butte, president; Dr. W. Gunn, of the same place, secretary (re-elected); Drs. G. H. Barber and W. L. Steele, both of Helena, were elected corresponding secretary and treasurer. The next annual meeting will be held at Helena, April 15, 1891.

MEDICAL LEGISLATION IN THE STATE OF NEW YORK.—The text of the new law creating Boards of Medical Examiners, and for further regulating the practice of medicine and surgery within that State, will be found in the present number of *THE JOURNAL*. It will be seen that the Regents of the University will, of necessity, be largely responsible for its successful operation. We have full confidence that their action will be eminently judicious, and that the most sanguine anticipations of the friends of the bill will be fully realized.

PROTECTION AGAINST CONTAGIOUS DISEASES.—Among other important matters submitted to the International Medical Congress, was that of securing the public against the transmission of contagious diseases. The following is a quotation from Secretary Blaine's letter, just submitted to Congress by the President, on that subject:

The sanitary officers of the Gulf cities of the United States have hitherto found great difficulty in protecting the public health against contagious diseases brought by shipping from South America, Central America, Mexico and West Indian ports, without restricting the freedom of commerce. At certain seasons of the year the quarantine regulations, which they have been compelled to adopt, have often placed an absolute embargo upon com-

munication with the tropical countries where such diseases originate. The same difficulties have been experienced in a like measure by the neighboring nations, and the attention of sanitary specialists, both in Europe and America, has been for years engaged in the task of devising some remedy.

International sanitary conventions were held at Rio de Janeiro in 1887, and at Lima, Peru, in 1889, and were composed of eminent scientists who gave the subject the closest investigation. At both these conventions regulations were framed for the protection of shipping and of ports exposed to infections, which agree in all their essential provisions. Those of the convention of Rio de Janeiro were adopted by Brazil, Paraguay, Uruguay and the Argentine Republic, and are now enforced in the ports of those nations. The recommendations of the Conference have not been carried into effect. Colombia, Venezuela, and the nations of Central and North America were not represented at either convention, but they are equally interested in securing the results desired, and the International American Congress recommends the acceptance and enforcement by them of the regulations of the Rio de Janeiro Convention, or those adopted at Lima, as the best systems that have yet been devised.

POACHING UPON THEIR PRESERVES.—Not a few physicians residing in New York, Philadelphia and elsewhere, have been in the habit of transferring their business to the sea-side during the summer months. Evidently the doctors of New Jersey have deemed this sort of practice, within the limits of their State, an invasion of States' rights. The legislature of that State has come to their aid, and passed a law, which took effect July 4th, forbidding such practice unless the physician from another State shall have first applied to the State officers, and after formal examination, have received a license therefor. Surgeons of the army, navy, and Marine-Hospital Service, those actually called from other States in consultation, and those called from other States to attend particular cases, are exempted from this requirement.

RESCUED BY AN UNDERTAKER.—The druggist is saved, though the patient is dead. By a mistake of a druggist in Brooklyn recently, an overdose of hyoscyamine was administered to a patient with fatal result. Later, a coroner's inquest was held, but in the meantime, an undertaker had subjected the body of the deceased to an embalming process, which destroyed all traces of the poison. The druggist is still held in bonds of \$2,000, but evidently conviction will be impossible. The need of special legislation upon this point is clearly manifest.

THE NEW CROTON AQUEDUCT IN NEW YORK CITY.—The time set for the opening of the new aqueduct was July 15. The tunnel of the aqueduct is over twenty-nine miles long, and has a capacity of three hundred and eighteen millions of gallons per day. The pipe line from 135th St. to the reservoir in Central Park is two and one-third miles in length, with a capacity of two hundred and fifty millions of gallons daily. The value of such a water supply to the City of New York is beyond any possible estimate, and its completion should be a matter for universal congratulation.

THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF NEW YORK will this year celebrate its fiftieth anniversary. During these fifty years it has graduated nearly six thousand students.

THE PASTEUR INSTITUTE was visited on May 24 by Lord Lytton, and many prominent members of the Anglo-American colony in Paris. Mme. Priestley, wife of Dr. Priestley, presented Pasteur with an album, of noted Englishmen and Americans.

LISTER AS THE GENIUS OF SURGERY.—The new Policlinic in Rome will have its two façades adorned with two bas-reliefs in illustration of the modern genius of medicine: John Baptist Morgagni representing pathological research, and Sir Joseph Lister surgical treatment. Designs for the bas-reliefs in question have been sent in by twenty-one competing sculptors, and are this week on view in the Scuola Vittorino da Feltre, in the Via della Polveriera. The number of designs is thirty-six, several artists having submitted more than one to the "Comitato Aggudicatrice." The committee, which is composed of an equal representation of fine art and medicine, under the Presidency of Dr. Guido Baccelli, has no easy task before it, as the competitors include the acknowledged masters of sculpture in Italy.—*The Lancet*.

AN ANATOMICAL QUARTO; A REVERSION OF TYPE.—The application of photography to the study of anatomy is an original feature, proposed to be adopted in a two-volume work now in preparation by Dr. George McClellan, of the Philadelphia School of Anatomy. The author's own dissections will be thus reproduced and will be colored by him after nature, the dissections with every effort made for this book. There will every honest exp^t full-page illustrations, large

quarto size. The text will be descriptive of the regional anatomy of the entire body in its relation to the most recent information regarding both surgery and medicine. The first volume will appear about five months hence, the Lippincott Company being the publishers. We had thought that "the age of the quarto" had passed forever, but the extension of photographic work seems destined to bring it back to us. It remains to be seen how well anatomy can be taught by the sun-picture.

REVUE INTERNATIONALE DE BIBLIOGRAPHIE is the title of a new journal published under the direction of Dr. Jules Rouvier, of Beyrouth. It will appear six times each year, and will be a pure index of medical literature, similar to the *Index Medicus*. The arrangement by subjects is apparently simple and effective. The first two numbers contain 593 pages, in which the French and Italian literature are richly represented, while the English and German references are comparatively meagre.

IF a man die, shall he live again? For the third time poor Kemmler is doomed to die. The place designated, as before, is at Auburn, N. Y., and the date is fixed for the week commencing August 4. It yet remains to be determined whether electricity, as in this instance, shall be a means of prolonging life; or whether, at this late date, it shall do its fatal work.

DEATH FROM NITROUS OXIDE.—The first death in Canada under nitrous oxide is reported from Montreal. A man, aged 24, went to the office of a dentist to have a tooth extracted, and requested to have nitrous oxide administered. After assuring himself that the patient was not suffering from heart or lung disease, the dentist administered the gas. No sooner had the tooth been extracted, than the patient gave a gasp and fell over in the chair. He was placed upon the floor and artificial respiration performed, but without restoring animation. The patient was not under the influence of liquor, and five hours had elapsed since last taking food (breakfast). The purity of the nitrous oxide was tested shortly after the accident, by the President of the Dental Association, Dr. Beers, who himself inhaled it from the same inhaler. The verdict of the jury was that the man died from syncope, caused by the administration of the gas, and they exonerated the dentist from blame.—*Med. Record*.

TOPICS OF THE WEEK.

SOUND ADVICE FOR THE PROFESSION.

The following lay sermon to the profession is to be found in the preface of a curious old medical work entitled *Vade Mecum or a Companion for a Chirurgeon fitted for times of peace and war*, by Thomas Brugis, Doctor of Physick. London. Printed by T. H. for Thomas Williams, at the sign of the Bible in Little Britain, 1652.

"Presume not too much on thy own wisdom and vertue, lest thou beest lifted up with a vain confidence, and puffed up with pride, for when men are carried with an inordinate and blind love for themselves, they are soon persuaded that there is nothing in them worthy to be dispised, yea, they think that their ignorance is wisdom, inasmuch that knowing nothing, they suppose they know all things, and having no dexterity to perform any one commendable work, they presume very inconsiderately to set their hand to every great matter; but the more care and diligence they bestow, being let with a desire to shew great skill, and thinking to win honour and renown, so much the more they discover their ignorance and blockishnesse, purchasing to themselves shame and infamy: For a man to know himself to be ignorant, is the best science and necessary for men, that without it they cannot be truly skillful; for as I said before, the ignorant person that knoweth not himself to be such an one, but supposeth he knoweth that which he doth not, indeed is as unteachable as a beast can be."

"Socrates, who by the oracle was declared to be the wisest man then living, was greatly commended by the ancients because he said he knew but one thing, viz., That he was ignorant and knew nothing.

"Now a word or two to the patient: Thou seest in every village a sort of Mountebanks, Empericks, Quacksalvers, Paracelsians, (as they call themselves), Wizards, Alchemists, Poor vicars, cast apothecaries, and phisytians men. Barbers and Good wives that professe great skill go with the name of Doctor, which title perhaps they bought at some beyond sea University, where they bestow this degree upon such people for their money; the phrase they use is '*Accipiamus pecuniam, demittamus asinum*,' and so with the title of Doctor Asse; away he flies into all countries possessing the people with stories and false tales, and leads them to the destruction of their bodies, if not of souls too, that an able Physitian or Chyrurgion, who hath undergone a great deal of hardship to benefit himself in his art can scarcely maintain himself, or know who shall be his patients."—*N. Y. Med. Journal*.

CHOLERA INTELLIGENCE.

The London *Lancet* has the following: The general tenor of the news from Spain is indicative of a subsidence of the cholera epidemic. At Gaudia there were between June 15, and July 1, 144 cases and thirty-six deaths, and during the next two days ten cases and five deaths were reported from that place. The other towns and villages specified as having suffered since our last issue, are Alcira, Magenta, Cullera, Fortaleny, Rolova, and one attack is said to have occurred in Valencia itself. The

official cholera bulletin announced a total of twenty-nine cases and eighteen deaths on July 5, and twenty-one cases with thirteen deaths on July 6; and on July 7, there was a general statement to the effect that there had been some increase of the disease in the province of Valencia, Gaudia and Rolova being specially named as affected. But whilst news has been thus irregular, a somewhat ominous telegram has been received to the effect that the civil authorities have endeavored to deceive the Spanish Government as to the real state of affairs in their several districts, and that cholera is much more extensively prevalent in the province of Valencia than the published returns indicate. Under these circumstances, it is evident that it would be impossible at the present moment to give any trustworthy forecast as to the future of cholera in Spain. But it is satisfactory to learn that there had been no spread of the disease beyond the limits of that country, and especially that no single case has occurred in France. On the Franco-Spanish frontier exceptional measures of precaution are taken, and these precautions are of a more rational sort than any ever yet resorted to in Southern Europe. But in some respects old and useless customs are maintained; thus, almost at the last moment we read of the disinfection of letters and mails. Whether this process is anything more than the time-honored custom of transfixing the letters and newspapers with a knife-like instrument, and fumigating their outsides until they smell very disagreeably, we are as yet unable to say.

THE FRENCH AND THE BERLIN CONFERENCE

It must be a matter of sincere regret that many of our French *confrères* are advising their countrymen to abstain from taking any part in the proceedings of the International Congress. It may be remembered that when this policy was first mooted many distinguished French physicians and surgeons declined to give in their adhesion to it. One of the foremost to urge that science was above politics was M. Huchard, who in some eloquent and trenchant phrases declared that French *savants* ought to attend the Congress. Unhappily, he is no longer of this opinion, for in the journal he edits with so much ability (*Rev. Gén. de Clin. et de Thérap.*) he has recently recanted his former declaration, on the ground that in 1871 Prof. Virchow, in a paper published in the *Archiv*, cited the opinion of Dr. Stark that the French people were, as to their general mental state, not far removed from paralytic idiocy, or *folie raisonnée*. Dr. Huchard, imputing this expression of opinion to Prof. Virchow himself, declares that it is impossible for any self-respecting Frenchman to attend a Congress presided over by him. He concludes by pointing out that almost simultaneously with the Berlin meeting, there is to be held at Limoges the annual meeting of the French Association for the Advancement of Science, and he for one will preferably take part in that meeting. To this Dr. Ewald, the editor of the *Berliner Klin. Wochenschrift* (July 7) replies in a dignified manner, pointing out that the obnoxious phrase complained of was not Prof. Virchow's own, and that, indeed, he did not endorse it; whilst looking to the diverse mental constitution of the

two nations, it is quite reasonable for the one to regard as morbid what is normal to the other. It is, indeed, a misfortune to science that such misunderstandings should be suffered to arise, and we may express the hope that even at this eleventh hour good sense will prevail. We are sure that few of the guests for whom Berlin is making such lavish preparation will be more welcome than those which come from the other side of the Rhine.

THE SPINAL CORD IN INFLUENZA.

At a meeting of the Royal Academy of Medicine of Turin on May 23d, Professor P. Foà described the lesions which he had found in the spinal cord of a woman who died of influenza. The patient, who was "of middle age," had suffered from the usual symptoms, and the attack was followed by extremely acute bronchial catarrh, and later on by bronchopneumonia on one side, with hepatization of the other lung. Sections of the spinal cord showed intense hyperæmia, its substance being dotted with minute red points. On microscopic examination, numerous hæmorrhagic foci were seen in all the divisions of the cord, notably in the upper two-thirds of the dorsal, and the upper portion of the cervical, region. There was recent infiltration of red corpuscles among the nervous elements, which were slightly separated and compressed, but not visibly altered in structure. Some of the vessels were obliterated, and it was in the neighborhood of these that the hæmorrhages had taken place. Degenerative changes were also present in places, the axis cylinders being hypertrophied to five or six times their ordinary size, and the nerve fibres degenerated. These degenerative foci were, as a rule, independent of the hæmorrhagic patches, but in the highest part of the cord the two lesions were sometimes found together. The hæmorrhagic foci were chiefly situated in the posterior columns, almost always at their periphery; the degenerative foci occurred mostly in the lateral columns. Neither the grey matter nor the posterior roots showed the least alteration. Dr. Foà thinks that the lesions were due to occlusion of vessels, giving rise in some places to hæmorrhage, and in others to alterations in the nutrition of the nerve fibres. He thinks it probable that the occlusion was caused by an accumulation of micro-organisms, but admits that he was unable to verify this conjecture. Examination of the brain was not permitted.—*British Medical Journal*.

THE FLORENTINE SCHOOL.

This important center of medical instruction keeps pace with the progress of science and teaching, in a manner worthy of its honorable traditions. Like other institutions of Florence, it owes much to the public spirit of leading citizens, one of whom, the Commendatore Egisto Fabbro has just endowed it with an amphitheatre for clinical surgery which is, in some respects, an improvement on any construction of the kind in Europe. Accommodating comfortably 180 students, it admits of their seeing every detail of the operator's work without rising or moving from their seats.

The donor visited all the medical schools of the European universities with a view to making the amphitheatre as perfect as possible; and, having drawn plans of the new features it was to embody, he entrusted the whole to the able architect, Professor Roster, who, with some practical modification, has carried them out with skill and effect. To appreciate the meritorious details of the construction, it must be visited on days when the more difficult operations are in progress, and then its advantages in point of light, ventilation, and general commodiousness will be apparent. All the flooring and the walls to some seven feet from the ground are of crystal, in large thick plates, so as to minimize all danger of infection; and the halls annexed to the amphitheatre, for the accommodation of the patients on their way to or from operations, for baths, for the *armamentarium chirurgicum*, and for the clinical *personnel*, are well appointed in every way for their purpose. Those of the profession who may visit Florence on an autumnal tour will find the Arcispedale di S. Maria Nuova made doubly attractive by this ingenious and effective adjunct to its clinical architecture.—*Lancet*.

THE LIQUOR TRAFFIC AND NATIVE RACES

It is most gratifying to note that the King of the Belgians has given an audience to Dr. Hannay, of the Congregational Union, and Mr. John McKenzie, late Assistant Commissioner in Bechuanaland, on this subject, in which he expressed hearty sympathy with the views of those who protest against native races being demoralized and destroyed by the traffic in intoxicating drinks, and a confident hope that the conference would adopt some effective measures for the restriction of this traffic. If European nations are not strong enough to impose such restraints on their trade members in those distant regions, so much the more pity.—*Lancet*.

KISSING THE BOOK.

The danger of kissing a greasy book, so often tendered in police and law courts to a witness about to be sworn, is at last appreciated by some officials and in some quarters. We see it stated that when the Duke of Tife appeared lately at Stratford in a prosecution, the Testament on which he took the oath was enveloped in some clean white paper for his use—a precaution which might with advantage be more generally adopted. Why should not the formula and method of taking the oath in English courts of justice be altered and adopted, possibly in imitation of the method adopted in Scotland, which is that of raising the hand in lieu of kissing the book?—*British Med. Journal*.

RESTRICTIONS IN ITALY.

The Italian Government has ordered that only medical men shall henceforth be entitled to practice dentistry and bloodletting—an order which will interfere with the practice of a large number of quacks, and which is therefore looked upon with satisfaction in medical circles.

PRACTICAL NOTES.

THREEFOLD USE OF ANTISEPSIN.

Paramonobromacetanilide, or antiseptin, is one of the latest synthetic substances which have the triple properties of analgesic, antithermic and disinfectant action. Dr. Cattini is reported in the *Lancet*, June 7, as having used the drug in all three relations. He regards it as similar to acetanilide in anti-pyretic power; its use in fever and in pneumonia with elevated temperature showed an active control over the development of body-heat. Its use as an anti-neuralgic was uneven, but frequently yielded good results; it has occasionally been followed by cyanosis and oppression of breathing, which, when excessive, have best been combatted by oxygen inhalations. As an application in hæmorrhoids and other anal affections, good results have followed the use of antiseptic suppositories. There have been encouraging results after its use upon wounds and ulcers. It forms an impermeable but transparent covering, beneath which the processes of repair and cicatrization have gone forward with surprising facility. The application is entirely free from odor. The dose of antiseptic by the mouth is, for adults, four or five grains; repetition should be made with caution. The second dose of five grains, taken after an interval of eight hours, has been the occasion of alarming cynotic and suffocative symptoms.

BORAX IN EPILEPSY.

At the meeting of the Cardiff Medical Society, held April 3, 1890, Dr. Stewart, assistant medical officer at the Glamorgan County Asylum, related cases illustrating the value of borax in epilepsy. 1. A girl admitted, aged 13, had epileptic seizure dating from birth, occurring in numbers varying from two to twelve per day, and chiefly by night. She had been under treatment repeatedly, but without benefit. Without treatment the fits during the first week were twenty-six in number; under borax they were reduced to twenty-four in the second and eight in the third week. After an interval free from fits of sixteen days, four occurred on two successive nights; then, after another interval of nine days, a single fit took place, and since then there has been no recurrence of fits—that is, a clear interval of over a month. 2. This patient began to suffer from nocturnal epilepsy at 18, and came under treatment five years afterwards. The case was complicated by serious cardiac disease and stenosis of the mitral orifice. Without treatment the average monthly number of fits were one hundred and one, and under borax this was reduced to twenty in the first month, seven in the second, one in the third, five in the fourth, none in the fifth, and one in the sixth. 3. This patient had

whooping-cough at 7, followed by hemiplegia, imbecility and epilepsy. The average number of fits a week, when no special treatment was employed, was 3.5, and bromide failed to effect any reduction; after two and a half years' treatment the weekly average had risen to sixteen. Under borax the weekly average during the first month was reduced to 15.5, and during the second month to 11.5. The diminution took place chiefly in the nocturnal seizures. In 4, 5 and 7, in which the fits occurred both by day and by night, bromide exercised a decided influence upon the diurnal seizures, leaving the nocturnal practically unaltered, and in these benefit was experienced from the combined use of bromide and borax, three doses of the former during the day and one single dose of the latter at bedtime. 6. This patient, epileptic and imbecile from birth, came under treatment at 35. The fits were of the nocturnal type, were uninfluenced by bromide, and were slightly diminished by borax. Dr. Stewart concluded that borax exercised a peculiar influence over nocturnal seizures, and that it was, in cases where the fits were entirely of that kind, that the greatest good might be expected; that bromide, on the other hand, exerted a more powerful influence over diurnal seizures, and that, in cases characterized by both day and night fits, a combination of these two remedies would be productive of most benefit.—*British Medical Journal*, April 19, 1890.

COCAINE PENCILS.

A useful expedient for some of the minor ills of the cutaneous surface is the cocaine pencil. According to the *British Medical Journal*, this can be made by the addition of two per cent. of cocaine to the ordinary cocoa butter pencil, to be applied by rubbing over the irritated spot. To those who are susceptible to insect bites, or chafing, or other irritations of the skin, this remedy commonly affords almost instant relief.

BROMIDE OF GOLD IN EPILEPSY.

The monobromide of gold has been employed in Russia, Germany and Belgium as a nervine and anti-epileptic. Dr. Goubart, of Brussels, has reported that, in a certain proportion of cases, it has been better borne than any of the bromides. According to him the initial dose for adults should be one-eighth of a grain to be increased gradually to one-fifth; for children from one twentieth to one tenth of a grain. The drug is a yellowish gray friable mass, insoluble in water.

CARBOLIZED OIL IN SCABIES.

Dr. Tresilian, (*British Medical Journal*) has had excellent results from the use of carbolized oil, 1 in 15 of olive oil, as a local application in scabies.

SOCIETY PROCEEDINGS.

Medical Society of the District of Columbia.

Stated Meeting, October 9, 1889.

THE PRESIDENT, DR. CHARLES E. HAGNER, IN THE CHAIR.

DR. R. T. EDES presented a specimen of ANEURISM OF AORTA, RUPTURING INTO PLEURA.

The specimen is an aneurismal sac 7 inches long and about 3 in greatest diameter, involving the lower part of the thoracic and upper part of abdominal aorta. It ruptured into the right pleura, which was full of blood. There were adhesions to the lungs and diaphragm. The aorta was markedly atheromatous, but there was not much calcareous deposit. The patient was a white man aged about 55, who was admitted to Garfield Hospital, this city, and died soon afterwards, October 5, 1889. No further history.

DR. C. W. RICHARDSON reported a case of ANEURISM OF THE POST-PHARYNGEAL WALL.

(See page 180.)

DR. HAMILTON: The case of post-pharyngeal aneurism might be treated by pressure upon both carotids; the electric needle might be used, but ligation would be very difficult.

DR. FRIEDRICH asked Dr. Hamilton if he had ever used fine wire.

DR. HAMILTON: Used potassium iodide and rest in the treatment of large aneurisms. Dr. T. F. Wood, of Wilmington, N. C., had diagnosed aneurism of the aorta in himself, and the diagnosis was confirmed by eminent specialists. He resorted to the rest treatment, virtually retiring from practice, and almost recovered. In a patient in the Marine-Hospital Service the post-mortem showed a blood clot in the aneurismal sac. This man had taken 30 grains of potassium iodide three times daily for three months. He died of some pulmonary affection, and the contents of the sac were found consolidated. Dr. Hamilton was not aware that potassium iodide had been given in small aneurisms. He thought compression advisable where practicable.

DR. BERMANN would be more interested if he could see the case, as the drawing was not sufficient. It was certainly unique. Electrolysis is most desirable in such cases.

DR. SELLHAUSEN thought ligation of the ascending pharyngeal artery might be tried in Dr. Richardson's case.

THE PRESIDENT asked Dr. Richardson if pressure of the carotids would stop the pulsation.

DR. RICHARDSON replied that it would.

DR. STOWELL (by invitation) thought that the best treatment in aneurism would be to wait for developments. Potassium iodide in large doses might prove beneficial, and pressure might be tried.

DR. J. FORD THOMPSON had seen the patient of which the pathological condition was well shown by the drawing. He considered it an aneurism of the internal carotid. It is an unusual case, and is remarkable because it has not grown more rapidly.

DR. D. S. LAMB related a case of CANCER OF STOMACH, CYST OF KIDNEY, PLEURITIC PLATE.

Harriet S., mulatto, age about 65. Tumor in abdomen appeared in October, 1888, but she had been complaining for some months previously. She had pain, and, as the disease progressed, repeated vomiting, sometimes "coffee ground." She steadily emaciated, and finally died August 25, 1889. Was attended by Dr. Mary Parsons, and Dr. J. Ford Thompson saw her in consultation, in view of a possible operation.

The post-mortem examination showed colloid cancer of almost the entire mucous membrane of the stomach, especially thick at the pylorus, where there was almost complete obstruction. The disease had involved the walls to the peritoneum and then spread, so that the under side of the diaphragm and upper surface of the liver showed patches; the omentum contained similar deposits. The lumbar glands were large and cancerous. In addition to these appearances there were several others of interest not connected with the cancer. The left kidney showed a large single cyst, 4x3x2.5 inches in size, for which there is no clinical history. The right kidney was fatty. There were firm old pleuritic adhesions on both sides, and in those of the right side a large calcareous plate. The spleen and internal genitals were atrophied.

DOMESTIC CORRESPONDENCE.

LETTER FROM NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Commencement Exercises of the College of Physicians and Surgeons—Columbia College—New York County Medical Association—Fifth District Branch of the New York State Medical Association—Annual Outing of the Jenkins Medical Society—The Syms Bequest to the Roosevelt Hospital—Miscellaneous Gleanings.

This year the Commencement of the College of Physicians and Surgeons, which, it will be remembered, is the Medical Department of Columbia College, was held for the first time in connection with the various other departments of this University; Mr. Seth Low, the new President of Columbia, having determined to inaugurate this new departure. The Commencement exercises were held at the Metropolitan Opera House, in the presence of a large and brilliant audience,

and a large number of degrees were conferred upon the graduates of the various schools. The Law School, which is one of the largest and best in the country, was not represented on this occasion, however, for the reason that the lengthening of the course of study in this department from two to three years left the school this-year, for the first time since 1860, without a graduating class. The graduating class of the College of Physicians and Surgeons was unusually large this year, numbering nearly two hundred, and they presented a very imposing appearance in their Oxford caps and gowns; another innovation introduced at this Commencement.

The University Council of Columbia College, at its last meeting, determined to modify the course of study in the senior year of the Academic Department in such a way that those students who desire to study a profession may commence their professional studies in the senior year, and thus save one year in preparatory work. By the action thus taken, Columbia offers to undergraduate students the advantages of a three years' course, such as the authorities of Harvard are considering the advisability of adopting, without in any way impairing the value of the degree of Bachelor of Arts. The privilege of thus taking two years in one, as it were, will not allow the granting of the Bachelor degree until the end of the fourth year, as heretofore; but will save a year to the student who proposes to take a professional course.

At the last meeting for the season of the County Medical Association, Dr. Joseph D. Bryant presented the specimens and read the history of a very interesting case of rupture of a femoral aneurism, with extravasation of blood. The common iliac was ligated, but death resulted. In this patient was found a rare anomaly. The common iliac bifurcated to the right of the median line, and this led to the mistaking, at the time of the operation, of the left iliac for the right iliac artery. On the same occasion, Dr. T. M. Bull read a paper on the "Prescription of Exercise," in which he referred to the various purposes for which exercise might be advised, and urged that the kind and amount of exercise required in any given case should be prescribed more specifically than was ordinarily done by the profession. One might just as well direct a patient simply to take medicine, he said, as to order him to take exercise without specific directions.

A matter has been taken up here by the Ladies' Health Protective Association which has recently received a good deal of attention in Philadelphia, viz.: the common habit of expectorating in public vehicles; and it is to be hoped that their efforts will be successful in abating, to some extent at least, a nuisance so disgusting and at the same time so fraught with danger to health. Dr. Samuel G. Dixon, of Philadelphia, has devised an in-

genious suction apparatus, by means of which a portion of any desired atmosphere can be obtained in a cylinder, in which glasses smeared with glycerine are placed for the purpose of securing some of the particles floating in such atmosphere; and by means of this apparatus, which he terms a germ collector, he has repeatedly demonstrated the presence of tubercle bacilli in air taken from horse-cars on the floors of which passengers had expectorated. While it is, perhaps, too much to hope that the common practice of expectoration can be checked to any very great degree, it is possible that, as a result of the present agitation, the railroad companies may be induced to disinfect their cars from time to time, and the danger arising from dried tubercular sputa thus be somewhat diminished.

The eighth special meeting of the Fifth District Branch of the New York State Medical Association was a very enjoyable affair. It was held July 22, at the historic old Court House at Kingston on the Hudson, where the constitution of the State of New York was drawn up and adopted, and among the scientific papers presented were the following: "A Practical Study of the Region of the Spine, and Pathological Changes occasioned in it by Traumatisms," by Dr. Thomas H. Manley; "A Strange Case," by Dr. J. G. Porteous; "Report of a Case of Acute Purulent Pleurisy. Pleurotomy, followed by rapid Recovery," by Dr. J. D. Sullivan. As on the last occasion, now several years ago, when the Fifth District Branch met at Kingston, the programme included a delightful excursion to the neighboring Catskill Mountains, and the successful issue of the undertaking was due to the indefatigable exertions of the Chairman of the Committee of Arrangements, Dr. Henry Van Hoevenberg, of Kingston, who has also been one of the most useful members of the Executive Committee of the Branch ever since its organization. Upon the adjournment of the meeting, the Fellows of the Association and a party of friends, including a number of ladies, took the Ulster and Delaware Railroad, which runs through the southern portion of the Catskill range, and after a charming ride of some thirty miles, with inspiring views of the mountains on either hand, changed at Phœnicia to the picturesque Stony Clove road. The latter climbs, at a very steep grade, up through the great Clove into the heart of the Catskills, and the huge mountains close in nearer and nearer until, just before it enters the open plateau, the road passes through a narrow defile, with stupendous rocky heights towering perpendicularly for many hundreds of feet on both the right and the left. The view at this point is of surpassing grandeur, and for such a short time each day does the sunshine penetrate the defile, that ice is found the year round, beneath the rocks by the roadside. The Kaaterskill terminus of the railroad is on the shore of one of

the beautiful Catskill Mountain lakes, and a drive of half a mile or so through the forest brought the party to the great Kaaterskill Hotel, the largest mountain hotel in the world, situated at an altitude of nearly 3,000 feet above the sea level. The view from it of the great mountains near at hand, and the wide-extended valley of the Hudson beyond, seen for nearly a hundred miles, is one never to be forgotten, and as the shades of evening softly descended, a matchless charm was added to the inspiring scene. With the brilliant electric lights about it, there is always moonlight at the Kaaterskill, but on this occasion, there was also a genuine young moon to grace the western sky, while in this pure mountain air the glorious evening star, the fiery Mars, and later the rising Jupiter, shone with a brilliancy unknown in the lower world. The next morning the excursionists spent in exploring the many points of interest in the beautiful Kaaterskill Park and the picturesque regions about it, and, after fortifying the inner man with a substantial repast, again took the train, delighted with their charming visit to the enchanted land of Rip Van Winkle.

In this connection, it is also pleasant to record the recent annual outing of the Jenkins Medical Society, in response to the hospitable invitation of Dr. E. F. Brush, of Mount Vernon. This organization was founded a number of years ago, in Yonkers, on the Hudson, and for a time was called the Yonkers Medical Society. Afterwards, however, a number of physicians in the town of Mount Vernon, also in Westchester County, but situated near Long Island Sound, were included in its membership; and after the death of the late Dr. J. Foster Jenkins, the most eminent physician of Yonkers, it was decided that it should bear his name in honor of his memory. On the occasion referred to, Dr. Brush invited the Society, with a few guests from New York, to a day of festivity on the beautiful dairy farm where is manufactured his delicious and renowned Kumiss. This farm is situated in a most retired and picturesque region, and though less than twenty miles from the centre of the metropolis, one enjoying the *dolce far niente* of its rustic delights might suppose himself far away in the wilds of Arcadia.

In description it would be vain to attempt to do the justice that our appetites did to that jolly clam-bake in the woods, on the bank of a crystal-flowing stream stocked with trout, where the table, in lieu of a cloth, was spread with fragrant clover, reposing amongst which were the most luscious of strawberries and cherries. The great event of the day, after the collation, was a grand base-ball match, between the Qui-nines, of Mount Vernon, and the Strych-nines, of Yonkers. When it is stated that while only four and a half innings were indulged in, the score stood at 29 for the former and 28 for the latter, some idea of the strength and brilliancy of the play may be formed. There was naturally

the wildest enthusiasm among the Mount Vernonites when this result was announced, and a silver ball provided by Dr. Brush was afterwards presented by the President of the Society to the victors, the record of whose achievement has since been duly inscribed upon it. Among the other sports of the day were a shooting match with a fine Winchester rifle belonging to Dr. Carlyle, which was won by Dr. Miles, of Yonkers, and a foot race, won by Dr. Pyne, also of Yonkers; and to both of these successful competitors silver prizes, generously furnished by Dr. Brush, were presented. The day was a perfect one throughout for such an outing, and it was pleasantly brought to a close by a festive supper, and a delightful homeward drive in the gloaming.

It is gratifying to learn that the proceedings for a revocation of the will of the late Mr. Syms, who left \$350,000 to build and equip the finest operating theatre in the world at Roosevelt Hospital, have been discontinued, so that there is now no obstacle to the carrying out of the provisions of the bequest. Soon after the will was probated, a year ago, the authorities of the hospital, in order to secure the completion of the work at as early a date as possible, began excavating for the foundation of the amphitheatre on their own responsibility; but when, early in the spring, a sister of Mr. Syms began proceedings for revoking the will, on the ground that her brother was of unsound mind and under undue influence when he made it, the work was naturally suspended.

In the early part of July the usual summer corps of extra physicians for house visitation among the tenement house population, were appointed and went on duty. It is their special province to look out and care for all sick children without medical attendance, and also to report any sanitary defects met with in the tenements visited. There can be no question that the summer mortality of the city is materially lessened by the labors of this extra corps of sanitary inspectors, aided by the good effects resulting from the excursions of the St. John's Guild Floating Hospital and other charities providing fresh air outings for the children of the poor; but notwithstanding all these agencies the death-rate is always high in the warm weather, especially among infants and young children, on account of the aggravation of the unhealthy conditions so generally surrounding the tenement-house population which a high temperature is sure to cause. Thus, in the week ending July 5 the number of deaths reported in the city was 1,010, an increase of 135 over the preceding week, and representing an annual death-rate of 32.29 per 1,000 in an estimated population of 1,631,848. Of these 1,010 deaths, 746 occurred in tenement houses, and 359 were from diarrhoeal disease, 326 of the latter being in children under 5 years of

age. In the week ending July 12, 1,157 deaths were reported, representing an annual death-rate of 39.98; 841 deaths were in tenement houses, and 697 among children under 5. In the week ending July 19, during which the average temperature was lower than in the preceding week, there were 941 deaths, representing an annual death-rate of 30.05. The effects of the continued warm weather were beginning to tell still more upon the children, however, and the number of deaths among those under 5 years of age was 538, more than 200 more than in the week ending July 5, when the total number of deaths in the city was larger than during this week.

The third death from hydrophobia ever reported at Bellevue Hospital recently took place at that institution. The patient was a young French-Canadian residing on Long Island, and soon after the symptoms of hydrophobia developed, he was brought to this city with the idea of placing him under the care of Dr. Gibier at the Pasteur Institute. By the time he reached New York, however, the disease was so far advanced that it was deemed best to take him at once to Bellevue. Here he was visited by Dr. Gibier, who naturally decided that it was entirely too late to attempt to practice any antirabic inoculations, and in a day or two he died with the usual symptoms of the disease. A careful autopsy was made by Dr. Biggs and other Bellevue pathologists.

P. B. P.

STATE MEDICINE.

The New Medical Examiners Law.

The following is the text of the Bill approved June 5, 1890, relating to the licensing of practitioners of medicine in the State of New York:

AN ACT TO ESTABLISH BOARDS OF MEDICAL EXAMINERS OF THE STATE OF NEW YORK FOR THE EXAMINATION AND LICENSING OF PRACTITIONERS OF MEDICINE AND SURGERY; AND TO FURTHER REGULATE THE PRACTICE OF MEDICINE AND SURGERY.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. From and after the first day of September, eighteen hundred and ninety-one, there shall be and continue to be three separate boards of Medical examiners for the State of New York, one representing the Medical Society of the State of New York, one representing the Homœopathic Medical Society of the State of New York, and one representing the Electric Medical Society of the State of New York. Each board shall consist of seven members, and each of said members shall serve for a term of three years, from the first day of September next after

his appointment, with the exception of those first appointed, who shall serve as follows, viz.: Two of each board for one year, two of each board for two years, and three of each board for three years from the first day of September, eighteen hundred and ninety-one. The power of appointment shall vest in the Board of Regents of the University of the State of New York, which shall appoint the members of said boards of examiners respectively from lists of nominees to be submitted by each of the said three medical societies, the number of nominees by each of said societies to equal or exceed twice the number of appointments so to be made from each of said societies. Each of said nominees shall be nominated by a majority vote at the annual meetings of the society with which said nominee may be in affiliation, and the names of persons so nominated shall be transmitted before the first day of July, eighteen hundred and ninety-one, to the said Board of Regents, under the seal of and signed by the president and secretary of the society so nominating. From these lists of nominees, respectively, said Board of Regents shall, prior to or during the month of July, eighteen hundred and ninety-one, appoint three separate boards of examiners, each board to be composed exclusively of members of the same medical society. In case of failure of any or all of said medical societies to submit nominees as aforesaid, said Board of Regents shall, prior to or during the month of July, eighteen hundred and ninety-one, appoint members in good standing of the corresponding society or societies entitled to nominate, without other restriction. Each one of said appointees, prior to appointment, shall furnish evidence of having received the degree of doctor of medicine in course, from some legally incorporated medical college authorized to confer the same, and shall certify to said Board of Regents to having practiced medicine or surgery under the laws of this State for a period of not less than five years immediately prior to such appointment. The said Board of Regents shall fill vacancies by death or otherwise, for unexpired terms of said examiners from the respective lists of nominees submitted by the said medical societies; and may remove any member of either of said boards for continued neglect of the duties required by this act, or on recommendation of the medical society of which said members may be in affiliation for unprofessional or dishonorable conduct. The Board of Regents shall, in their first appointments, designate the number of years for which each appointee shall serve. The appointments of successors to those members whose terms of office will expire on the first day of September of each year, shall be made by the Regents during or before the month of July of such year, upon the same conditions and requirements as hereinbefore specified with reference to

the appointment of the three separate examining boards, each to be composed exclusively of members of the same medical school and society as are hereinbefore provided.

SEC. 2. Said boards shall be known by the name and style of Boards of Medical Examiners of the State of New York. Every person who shall be appointed to serve on either of said boards shall receive a certificate of appointment from the Regents of the University; and within thirty days after receiving such certificate shall take, subscribe and file in the office of the Secretary of State the oath prescribed by the twelfth article of the constitution of this State. Each of said boards shall be authorized to take testimony concerning all matters within its jurisdiction, and the presiding officer, for the time being of either of said boards, or of any of the committees thereof, may issue subpoenas and administer oaths to witnesses. Each of said boards of examiners shall make and adopt all necessary rules, regulations and by-laws not inconsistent with the constitution and laws of this State or of the United States, whereby to perform the duties and transact the business required under the provisions of this Act, said rules, regulations and by-laws to be subject to the approval of said Regents.

SEC. 3. From the income provided in this Act, the Regents may pay, not to exceed said income, all proper expenses incurred by its provisions; and if any surplus above said expenses shall remain at the end of any year, it shall be apportioned by said Regents among said examiners pro rata, according to the number of candidates examined by each.

SEC. 4. The first meeting of each of the examining boards respectively shall be held pursuant to a call issued by the secretary of the Board of Regents, within two months from the first day of September, eighteen hundred and ninety-one, suitable notice in the usual form being given to each of the members thereof, specifying the time and place of meeting. At the first meeting of each of the boards respectively, an organization shall be effected by the election, from their own membership, of a president and secretary. For the purpose of examining applicants for license, each of said boards of medical examiners shall hold one or more stated or special meetings in each year, pursuant to a call of the Board of Regents, due notice of which shall be made public, at such times and places as may be determined by the Board of Regents; but each examination shall be under the supervision of an examiner appointed by the Board of Regents, and who shall not be a member of any board of medical examiners. At said stated or special meetings a majority of the members of a board shall constitute a quorum thereof, but the examination may be conducted by a committee of one or more members of the board of examiners, duly authorized by such board.

SEC. 5. The several boards of medical examiners shall submit to the Board of Regents lists of examination questions for thorough examinations in anatomy, physiology and hygiene, chemistry, surgery, obstetrics, pathology and diagnosis, and therapeutics, including practice and materia medica; from the lists of questions so submitted, the Board of Regents shall select the questions for each examination, and present the same to the candidates at each examination by an examiner appointed therefor by the Board of Regents, and such questions for each examination shall be so selected as to require the same standard of excellence from all candidates, except that in the department of therapeutics, practice and materia medica, the questions shall be in harmony with the tenets of the school selected by the candidate.

SEC. 6. Said examinations shall be conducted in writing, in accordance with the rules and regulations prescribed by the Board of Regents, and shall embrace the subjects named in section five of this Act. At the close of said examination, the examiner appointed by the Board of Regents having supervision thereof, shall forthwith deliver to the boards of medical examiners having charge of such examination, or to their duly authorized committee, the question submitted to and the answers of each applicant, and such boards of medical examiners, without unnecessary delay, shall transmit to the Regents of the University an official report, signed by the president, secretary and each acting member of said board of examiners, stating the examination average of each candidate in each branch, the general average, and the result of the examination, whether successful or unsuccessful. Said report shall embrace all the examination papers, questions and answers thereto. All the examination papers so returned shall be kept for reference and inspection among the public records of the University.

SEC. 7. On receiving from either of said boards of medical examiners such official report of the examination of any applicant for license, the said Regents shall issue to every applicant who shall have been returned as having successfully passed said examination, and who shall in their judgment be duly qualified therefor, a license to practice medicine and surgery in the State of New York. The Board of Regents shall require the same standard of qualifications from all candidates, except in the department of therapeutics, practice and materia medica, in which the standard shall be determined by each of the boards of medical examiners respectively. Every license to practice medicine or surgery, issued pursuant to this Act, shall be subscribed by the chancellor and secretary of the University of the State of New York, by each medical examiner who reported the licentiate as having success-

fully passed the examinations, and also by those of the Regents who examined and approved the credentials of said licentiate upon the application for examination. It shall also have affixed to it, by the person authorized to affix the same, the seal of said University. Every such license shall be substantially in the following form :

"The Regents of the University of the State of New York. To all whom it may concern, greeting:

Be it known that A. B., on the . . . day of A. D. . . having offered to us satisfactory proof that . . . was more than twenty-one years of age, and had received proper preliminary education; that . . . had attended three full courses of medical instruction, the last course at . . . in . . . in the years of . . . , and had received from the . . . of . . . the degree of doctor of medicine; we thereupon gave a written order for the examination of said A. B. before one of the boards of medical examiners of the State of New York; that the said A. B. was fully examined before said board and found proficient and qualified to practice medicine and surgery by the examiners, whose signatures are hereunto attached. We, therefore, have granted to said A. B. this our license to practice medicine and surgery in the State of New York as a physician and surgeon, and have caused the names of the chancellor and secretary of our Board of Regents and said examiners to be subscribed, and the seal of the University to be affixed hereto, and have also caused this license to be recorded in book . . . of medical licenses, on page . . . ' Before said license shall be issued, it shall be recorded in a book to be kept in the office of said Regents, and the number of the book and the page therein containing said recorded copy shall be noted in the body of the license. Said records shall be open to public inspection, under proper restrictions as to their safe keeping, and in all legal proceedings shall have the same weight as evidence that is given to the record of the conveyance of land.

SEC. 8. From and after the first day of September, eighteen hundred and ninety-one, any person not theretofore legally authorized to practice medicine and surgery in this State, and desiring to enter upon such practice, may deliver to the Regents of the University, upon the payment of twenty-five dollars into the treasury of the University of the State of New York, a written application for license, together with satisfactory proof that the applicant is more than twenty-one years of age, is of good moral character, has obtained a common school education, and has either received a diploma conferring the degree of doctor of medicine from some legally incorporated medical college in the United States, or a diploma or license conferring the full right to practice all the branches of medicine and surgery in some foreign

country, and has also studied medicine three years, including three courses of lectures in different years, in some legally incorporated medical college or colleges prior to the granting of said diploma or foreign license; provided that two courses of medical lectures, both of which shall be either begun or completed within the same calendar year, shall not satisfy the above requirement. Such proof shall be made, if required, upon affidavit. Upon the making of said payment and proof, the Board of Regents, if satisfied with the same, shall direct the secretary thereof to issue to said applicant an order for examination by any one of said boards of medical examiners which said applicant may elect. In case of failure at any such examinations, the candidate, after the expiration of six months, and within one year, shall have the privilege of a second examination by the same board to which application was first made, without the payment of an additional fee. And it is further provided that applicants examined and licensed by State examining boards of other States, on payment of ten dollars to the University of this State, and filing in the office of said Regents a copy of said license, certified by the affidavit of the president and secretary of such board, showing also that standard of acquirements adopted by said State Examining Board is substantially the same as is provided by sections five and six of this act, shall, without further examination, receive from said Regents a license conferring on the holder thereof all the rights and privileges provided for by sections eight and nine of this act.

SEC. 9. On and after the first day of September, eighteen hundred and ninety-one, no person not theretofore a legally authorized practitioner of medicine and surgery, under the laws of this State then in force, shall practice medicine or surgery in this State, unless that person shall have received from the Regents of the University, after examination and approval, as herein provided, a license to practice as a physician and surgeon, and unless said license shall have been registered as required under the provisions of chapter six hundred and forty-seven of the laws of eighteen hundred and eighty-seven, or, unless such person shall hold a license from the State examining and licensing board of another State, and shall have been licensed by the Board of Regents, as provided by this act.

SEC. 10. Nothing in this act shall be construed to interfere with or punish commissioned medical officers serving in the army or navy of the United States, or in the United States Marine Hospital Service while so commissioned, or any one while actually serving as a member of the resident medical staff of any legally incorporated hospital, or any legally qualified and registered dentist exclusively engaged in practicing the art of dentistry, or interfere with manufacturers of

artificial eyes, limbs, or orthopedical instruments or trusses of any kind from fitting such instruments on persons in need thereof; or any lawfully qualified physicians or surgeons residing in other States or countries, meeting regular physicians and surgeons of this State in consultation, or any physician and surgeon residing on the border of a neighboring State and duly authorized under the laws thereof to practice medicine or surgery therein, whose practice extends into the limits of this State; providing that such practitioner shall not open an office or appoint a place to meet patients or receive calls within the limits of the State of New York; or physicians duly registered in one county of this State called to attend isolated cases in another county but not residing or habitually practicing therein.

SEC. II. This act shall take effect immediately.

MISCELLANY.

THE ANNUAL MEETING OF THE AMERICAN CLIMATOLOGICAL ASSOCIATION will be held in Denver, September 2 to 4, and a successful gathering is expected. The Western Passenger Traffic Association has granted a one fare for round trip rate; tickets to be bought August 31 and September 1, and good for return till September 25—which is open to others as well as members. One-third of the time is expected to be given exclusively to the study of Colorado subjects, and after the three days' sessions the visiting physicians are to be given an opportunity personally to investigate the mountain resorts by a series of complimentary excursions.

The programme includes papers (titles as yet unannounced) by the following: Dr. H. A. Johnson, Chicago; Dr. R. G. Curtin, Philadelphia; Dr. T. M. Cammann, New York City; Dr. Karl von Ruck, Asheville, N. C.; Dr. S. A. Fiske, Denver; Dr. Robt. P. Meyers (of Texas) Manitou Springs, Col.; Dr. S. E. Solly, Colorado Springs, Col.; Dr. W. W. Johnston, Washington, D. C.; Dr. Walter Lindsay, Los Angeles, Cal.; and a combined report from Drs. Standart, Hamilton and Foster, of Salt Lake City, Utah.

Also the following completed list:

By Dr. Charles Denison, of Denver, Col., "Abnormal Intra-Thoracic Air-Pressures and their Treatment."

Dr. B. L. Westbrook, of Brooklyn, "The Physiology and Pathology of Breathing."

Dr. F. I. Knight, of Boston, "Can Patients in whom Tubercular Disease of the Lungs has been arrested in a High Altitude, return with safety to a Low one?"

Dr. A. Tucker Wise, of Malojia, Switzerland, "The Climate of Ajaccio, Corsica."

Dr. A. T. Eckridge, of Denver, "The Influence of High Altitudes upon the Nervous System."

Dr. T. M. Coan, of New York City, "The Climate of the Hawaiian Islands."

Dr. J. H. Tindale, of New York City, "Fifteen Aphorisms embodying the Present Status of Pulmonary Consumption."

Dr. Henry M. Baker, Lansing, Mich., "Relations of certain Meteorological Conditions to Diseases of the Lungs and Air Passages in Colorado."

Dr. J. H. Kellogg, of Battle Creek, Mich., "The Essentials for a successful 'Closed' Sanitarium in Colorado."

Dr. R. Harvey Reed, of Mansfield, O., "The Climate of our Hotels, Buildings and Railway Coaches a

leading Factor in the Production of the annual crop of Pulmonary Diseases."

Dr. Leonard Weber, of New York City, "A Comparative Study of the climate of those regions of Europe and America which are now *en vogue* in the treatment of Pulmonary and Nervous Diseases."

Dr. John H. Musser, of Philadelphia, "Bilateral Pleurisy."

Dr. W. M. Vandell, of El Paso, Tex., "The Preferable Attributes of Climate for Consumption as applied to winters in Southern New Mexico, Southern Arizona and Western Texas."

Dr. James H. Wroth, of Albuquerque, N. M., "The Climate of New Mexico as viewed by the Medical Fraternity there."

Dr. Francis A. Atkins, of Las Vegas, N. M., "Climate by Exclusion."

Dr. W. R. Tipton, of Las Vegas, N. M., "The Preferable Climate for Consumptives as applied to Northern New Mexico."

Dr. W. A. Jayne, of Georgetown, Col., "The so called High Altitude Pneumonia."

Dr. W. M. Strickler, of Colorado Springs, Col., "Operative Means for the purpose of contracting the Thorax in certain Chest Diseases."

Dr. A. Stedman, of Denver, "The Influence of High Altitude Climate upon Youth as determined by an acquaintance with the Public School System of Denver."

Dr. Thos. Darlington, of Bisbee, Ariz., "Information about desirable localities for winter Health Stations in Southern Arizona."

Dr. H. O. Dodge, of Boulder, Col., "Acclimation of Consumptives to the Colorado Climate."

Dr. B. P. Anderson, of Colorado Springs, Col., "Mode of Life of the Consumptive Patient in High Altitudes."

Dr. Jacob Reed, of Colorado Springs, "The Relation of Climate to Pulmonary Hæmorrhages in Colorado."

Dr. H. A. Lemen, of Denver, "Influence of High Altitude Climate upon Women."

LETTERS RECEIVED.

Dr. E. B. Herrington, Elida, O.; Dr. J. K. Leaning, Cooperstown, N. Y.; Dr. H. L. Getz, Marshalltown, Ia.; Dr. W. A. Dietrich, Lookout Mountain, Tenn.; Dr. W. R. Greenlee, Harriston, Miss.; Dr. R. B. James, Dr. S. T. Armstrong, New York; Dr. O. P. Holt, Cincinnati, O.; Dr. A. G. Young, Augusta, Me.; Dr. F. L. Moyne, Sweet Springs, W. Va.; Dr. H. Cushman, Stromsburg, Neb.; John F. Jones & Co., Dr. G. Masson, Paris, France; Dr. B. T. Shimwell, Dr. R. J. Dunglison, Philadelphia; Dr. G. W. Wendell, Boston, Mass.; L. Graham & Son, New Orleans, La.; University of Denver, Denver, Col.; Dr. C. R. Schaefer, Indianapolis, Ind.; Dr. J. H. Wilson, Plymouth, Ind.; Dr. T. D. Crothers, Hartford, Conn.; Dr. J. C. Hoag, Chicago; Dr. W. Woodruff, London, Canada; Dr. G. T. Vaughn, Evansville, Ind.; T. W. Hannaford, London, Eng.; Dr. H. J. Houghton, Norristown, Pa.; Dr. U. O. B. Wingate, Milwaukee, Wis.; Dr. Chas. Denison, Lake Geneva, Wis.; Dr. C. C. Browning, Blackwell's Island, N. Y.; Lord & Thomas, Chicago; Dr. D. D. Bramble, Cincinnati, O.; Palmer House Co., Chicago; Dr. C. W. Richardson, Washington; Dr. B. A. Watson, Jersey City, N. J.; Dr. L. G. North, Tecumseh, Mich.

Official List of Changes in the Medical Corps of the U. S. Navy for the Week Ending July 26, 1890.

Asst. Surgeon L. H. Stone, ordered to the U. S. receiving ship "New Hampshire."

Asst. Surgeon J. F. Uric, detached from the U. S. receiving ship "New Hampshire" and ordered to U. S. receiving ship "Wabash."

P. A. Surgeon Oliver D. Morton, granted leave of absence for month of August.

Surgeon H. J. Babin, granted one month's leave of absence from July 23.

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No. 6.

ORIGINAL ARTICLES.

ASEPSIS VERSUS ANTISEPTICS IN OBSTETRICS AS A PREVENTIVE OF PUERPERAL SEPTICÆMIA.

Read in the Section of Obstetrics and Diseases of Women at the Forty-first Annual Meeting of the American Medical Association, Nashville, Tenn., May, 1890.

BY T. B. GREENLEY, M.D.,
OF WEST POINT, KY.

The history of medicine suggests to the mind a history of theories, hypotheses and dogmas, from the time of the founding of the School at Alexandria under the guidance of Erasistratus and Herophilus, two of the principal professors. This was 300 years before Christ.

The profession then became divided into two sects, known as the dogmatists and the empirics. The former, sometimes styled the rationalists, contended that before prescribing for the sick we should endeavor to learn the nature of the disease by ascertaining its cause; whilst the empirics "contended that this knowledge was impossible to be obtained, and if possible not necessary," and that experience should be our sole guide, and if we should step beyond that "we are liable to commit dangerous and often fatal errors."

This division of the profession continued several centuries—"all physicians being included in one or the other of these rival sects;" the two schools being about equal as to numbers.

About the commencement of the Christian era a new sect was founded by Themison, of Laodicia. This sect was termed the methodics, who seemed to have occupied middle ground between the dogmatists and the empirics. The methodics became to be the fashionable or most prominent sect, which position it held for the first two centuries of our era. About this time they broke up, when the two sects, pneumatics and eclectics followed.

During the first few centuries of the Christian era several able medical authors arose, among them the celebrated Galen, whose opinions remained unchallenged till the sixteenth century, when his works were publicly burned by that insane quack, Paracelsus. In the fifteenth century the sect called the "chemical physicians" arose, who claimed that all the phenomena of the living

body could be explained by the chemical laws as those which rule inorganic matter." Paracelsus belonged to this sect.

In the seventeenth century another chemical sect was instituted, which differed from the former in that they believed all diseases were due to humors causing fermentation in the blood—"that certain humors are naturally acid and others alkaline, and that if one or the other of these predominated, certain specific diseases were the result." This sect was termed the humoral pathologists.

This dogma, however, was soon succeeded by the mathematical or iatro-mathematical school. "As this school gained ground, that of the chemists declined." Another rival sect at this time made its appearance under the title of vitalists, which originated with Van Helmont. Sydenham rather leaned towards the chemists, but "did not allow his speculative views to interfere with his treatment."

Haller, an eminent pupil of the great Boerhaave and the father of modern physiology, had some prominent opponents to his theory of irritability and sensibility. Cullen, who, in the last century, did a great deal to establish medicine on a firm and reliable basis, had, as he said, to contend with many baseless theories as well as false facts. His contemporary, Dr. John Brown, was the father of the so-called Brunonian theory, which spread to a considerable extent over Europe, and especially in Italy. It, however, did not seem to take to any great extent in this country. His doctrine was, that all diseases were divided into two classes, the sthenic and asthenic, and were to be treated accordingly—the former by sedatives and the latter by stimulants.

About the time the Brunonian theory expired, Hahnemann published his work entitled "Organon of Medicine," by which disease was to be treated by similars, infinitesimally administered.

Since that time many pathies and isms, *id genus omne*, have made their appearance and had their advocates. Medicine, like all other sciences, has made progress by coming in contact with antagonistic forces, and we may truly say that if any science ever had to make headway against a multiplicity of adverse forces it has been medicine. It has been, and you might say, is still, a kind of shuttlecock, against which every one so inclined

may play battledoor, and notwithstanding the players are usually defeated, they generally leave something good behind. And to make the rule good we can make one exception, to wit: that wild quack Paracelsus; and even he, with all his fanatical absurdities, in conjunction with his chemical followers, evolved some metallic remedies. One reason why medicine has had so many adverse dogmas to combat, is the frequent introduction of extreme ideas without a basis of common sense, and which seemed so absurd to the minds of thinking men that new theories were instituted in order to combat these extremes. Many sects, doubtless, have originated from this cause. No doubt the extreme dosage and profuse blood-letting period induced Hahnemann to improvise his system of small dosage. The same might be said in regard to the introduction of Thompsonianism in this country. So many patients were deformed and destroyed by salivation and blood-letting, it was thought that the herb plan in connection with steam, might not be so dangerous to life. Then it will be seen that it is not well to allow the pendulum of medicine to swing too far either one way or the other.

The science of medicine was at a stand-still in Europe for more than half a score of centuries after the death of Galen. During that time, however, some advances were being made in Arabia by the great Avicenna and others. This might be termed the inactive, or dark age of medicine, the practice being merely a routine by the Galenists.

These remarks were suggested and regarded as being *apropos* to what I have to say in regard to the present controversy respecting the use of antiseptics in obstetrics as a prophylaxis to puerperal fever.

The various uses of so-called antiseptics are based on the hypothesis that the atmosphere is a great sea filled with pathogenic germs; and that by the use of these agents we are enabled to prevent their contact with wounded or raw surfaces, or to destroy them should they so come in contact.

My object in writing this paper is to inquire whether the great benefit claimed be due to their use, or to other means instituted at the same time?

At the time Prof. Lister commenced the use of his antiseptic dressings, he also instituted a method of absolute cleanliness in his surgical wards, hitherto unpracticed and even unknown.

The means of cleanliness he employed no doubt were the main factors to which was due his great success over former methods of managing surgical cases; and doubtless his death-rate would have been but little greater had he used a diminished paraphernalia in dressing. This fact has since been demonstrated in Bartholomew Hospital by Mr. Savary.

The same may be said as it respects gynecological surgery. This fact is made palpable by the

great and unprecedented success of Mr. Tait, Dr. Bantock and others. Mr. Keith, following the directions of Prof. Lister in the use of the spray, lost several patients by its use, when he abandoned it, and now employs simply aseptic means. This much by way of prelude to the subject under consideration.

It is well known that, before Listerism or antiseptics were introduced into surgery, the lying-in hospitals of Europe were mere death-traps to lying-in women—ranging in mortality from 5 to 19 per cent., and this mainly due to puerperal septicæmia. During seasons of epidemics it greatly exceeded this rate. At these times, in some hospitals, nearly every woman died.

In 1866, Lefort's investigations show that the average mortality in lying-in hospitals was one in twenty-nine, and in cities one in 212 cases, showing very plainly that the cause of the disease existed within the walls of the institutions.

As soon as a method of cleanliness and proper ventilation was instituted in these hospitals, a great change took place for the better. These happy results, however, were mainly attributed to antiseptics rather than asepsis. This plan consisted, mainly, in the use of vaginal injections of carbolic acid, both during labor and after. These injections were kept up for ten days or two weeks, and some went so far as even to inject the womb, once or twice a day. The general strength of these injections was 1 to 40, or about 2.5 per cent.

To be sure, there were many other things used as preventive means, such as clean hands on the part of both physicians and nurses. Everything about the patient and the room must be scrupulously clean. She must take a bath and be sponged off well with a bichloride solution, 1-1,000, and the vulva and pubes thoroughly disinfected. Even the walls, floor and furniture of the room must be scrubbed and washed with bichloride solution.¹

These injections were used in order to destroy any germs that might be present in the vagina, as well as to prevent their introduction.

Now, for a moment, let us see what effect the carbolic solution injections into the vagina during labor will produce. In the first place, the mucus of the parts, which is the natural lubricant of the canal to promote the passage of the head, is washed out; the surface of the organ being to some extent rendered dry by the irritating action of the drug; besides it must, in some degree, worry the patient, at a time when her mind is greatly distressed. These effects would naturally tend to protract the labor.

One would, on reflection, suppose but little good would result from the use of vaginal injections after labor, as far as the removal or destruction of germs that might be present in the organ is concerned. The lining membrane is now in

¹ See Gaillard Thomas' Address, N. Y. Medical Journal, December, 1883.

folds, and should there be any germs hid away in these folds or rugæ, they would not be molested by the small stream of fluid passed by a Davidson or Higginson syringe. Then this operation is to be repeated several times in the twenty-four hours, at a time when the patient needs rest and should be disturbed as little as possible, to say nothing of the danger that might result from the frequent application of the solution. Then again, the frequent introduction of the nozzle of the syringe into a lacerated canal would greatly tend to prevent healing, to say nothing of the danger of the introduction of septic matter by the finger of the nurse, or germs from the atmosphere. The general directions in regard to the cleanliness of the patient and her surroundings are most admirable.

Dr. Garrigues,² of New York Maternity Hospital, introduced a different plan of antiseptics from that by injections. He uses what he terms a bichloride pad to the vulva. This is confined to the parts by being fastened back and front to a binder. The pad is renewed three times a day.

According to Dr. Gaillard Thomas there might result danger from confining the lochial discharge in contact with the lacerated or wounded surfaces. He says:³ "In every case of child bearing the cervix, vaginal mucous membrane, perineum and vulva are in varying degrees lacerated; and in every case the offensive fluid, called lochia, poisons these freshly made, unprotected wounds." But doctors will disagree. Dr. T., instead of confining the lochia in the vaginal canal, washes it out with carbolic solution. Although Dr. Garrigues claims better success with the use of his pad as a prophylactic against septicaemia than had by injections, yet it would seem still safer, in order to guard against the contingencies alluded to by Dr. Thomas, to introduce a drainage tube through the pad to allow the escape of the lochia as it comes down from the womb.

Dr. G. uses a very strong solution of the bichloride, 1-2000, both to saturate his pad and to inject into the womb after a labor requiring the introduction of the hand or instrument; also in washing out the womb in the treatment of puerperal fever.

Dr. Baruch,⁴ of New York, in 1884, made a tabular statement from the report of various lying-in hospitals of Europe, comparing the results of those using carbolic acid injections prophylactically, with those where it was not used. The table stood as follows:

HOSPITALS IN WHICH INJECTIONS WERE PRACTICED.	
	Mortality per cent.
Charité (Hartman)	2.5
Charité, '79 to '81 (Gusserow)	1.5
Charité, '82, Gusserow and Somerbrodt	1.6
Maternity at Parma	3.42
Glasgow Maternity (New building)	1.56

² N. Y. Med. Journal, March 1, 1884.

³ See N. Y. Journal, December 15, 1883.

⁴ New York Medical Journal, March 22, 1884.

HOSPITALS IN WHICH INJECTIONS WERE NOT USED.

	Mortality per cent.
Pavillon (Tarnier to June '83)	.00
Prague Maternity (Breisky and Weber, '80)	.46
Prague Maternity (Breisky and Weber, '80)	.56
Breisky and Fischel, '81	.21
Breisky's ward, '82	.00
Copenhagen maternity, '80	.26
Copenhagen maternity, '81	.50
Prague, 1,100 cases, '83	.00
New York Maternity, 3d series, Dr. Garrigues	.00

It will be seen, then, from this table that the advantage is greatly in favor of those institutions where prophylactic injections were not used. Then on what grounds can we attribute the great change effected in the prevention of puerperal sepsis within the last decade if not to cleanliness, together with better ventilation and less crowding? The answer will be made more palpable when we come to examine the germicidal properties of some of the agents used as antiseptics. The difference of success between those who use and those who do not use injections, the sanitary environments being the same, must be attributed to the irritating or poisonous effects of the drugs used. Then why not put into practical use the discovery made by Pasteur more than a score of years ago, to-wit: that atmospheric air could be rendered entirely aseptic by filtering through cotton cloth? This being true the Lister dressing to wounds could be greatly modified as well as simplified. He has already dispensed with a part of his original dressing, and changed some of the antiseptic agents. He dispensed with the spray some time ago, and I am informed by a friend, who paid him a visit last year, that he has also laid aside the protective and the Mackintosh parts of his dressing. He has also lately changed the use of the bichloride of mercury for that of the double cyanide of mercury and zinc; and I predict that if he lives another decade he will have dispensed with all dressing saturated with irritating so-called antiseptics, and acting on Pasteur's discovery, apply simply clean cloths and bandages. I make this prediction on the hypothesis, that as an acute observer he will readily detect any imperfection or ill effect in his dressing and change accordingly; or, in the words of Gaillard Thomas, "let the errors of today be corrected by the wisdom of to-morrow." No one should be wedded to a principle so closely as to dogmatically adhere to it when he perceives it is wrong, and so far Lister has escaped this charge.

He is still experimenting in order to develop the best. As soon as he discovered the spray to be irritating and useless he discarded it, and so in other things. I have thought it strange he did not discard the protective long since, as I could not see what efficacy it possessed, but rather harm, as it was applied immediately over the orifices of the drainage tubes and must have

prevented the escape of the discharge from the wound. And as to the Mackintosh, although it was applied to prevent the possibility of entrance of microbes to the wound, that end was already secured by the abundance of the different kinds of gauze dressings.

To show how we may be mistaken in our views of new and not thoroughly tried plans of treatment, we only have to refer to the able address of Mr. MacCormac in 1879, before a branch of the British Medical Association, in London. He, as well as Sir Joseph Lister, Watson Cheyne and others, urged the great importance of observing all the minutiae and detail of the Lister plan, and if this was not strictly adhered to, failure was apt to result. Great stress was laid on the beneficial effects of the spray—in fact more importance was attached to the use of that than any other element of the dressing. This was particularly pointed out as the means *par excellence*, to be used in the safe management of ovariotomy, or any case where laparotomy has to be performed. But, not long after this, as before referred to, the acute observation of Dr. Keith confirmed him that he was poisoning and destroying his patients by its use. Professor L. soon followed Dr. Keith in dispensing with its use on account of its irritating effects. I presume it is not now used by any surgeon. In discussing Mr. MacCormac's address, Sir Joseph was generally accorded due credit for having introduced a new principle in the management of wounds, and a majority agreed with him that true antiseptic treatment consisted in the close observance of all the details of the method, without which success would not be assured. Sir James Paget, although awarding great credit to Sir Joseph, pointed out the fact, that great improvement in the sanitary condition of the British hospitals had already commenced, and that in his opinion cleanliness was the true secret of success.

In order to illustrate the danger of such dogmatic assertions as that the Lister plan of managing wounds, or that injections of antiseptics in obstetrics were infallible as preventives to septicemia, and if failure occurred when any of these details were omitted, the attending surgeon or physician was responsible, any one in the profession was liable to be mulcted into heavy damages in case of malpractice suit. Since the discussion of that address many changes have taken place in the minds of men, and we can now begin to see that the medical pendulum was allowed to swing too far to the left. And now a malpractice suit would be as liable for commission as it would then have been for omission.

It would seem from the present status of opinion that a majority of prominent obstetricians regard the cause of puerperal septicæmia to be heterogenous and of course preventable.

This septic ferment, they say, may be com-

municated by the hands or clothing of the physician or nurse, and may consist of septic matter from a patient affected with the disease, from an unhealthy sore or ulcer, erysipelas, measles or scarlatina, and matter from a cadaver. Now to the view of an old-time observer it seems strange that so many different causes may, or can, produce a disease varying so greatly in its characteristics from those whose specific causes develop results peculiar to those causes, and are usually regarded as *sui generis* in character. Were I to carry the microbe of erysipelas to a puerperal patient, and evil results followed, I would expect to see erysipelas in some form. If measles, then in case the patient was not protected, I would look for the development of that disease; also the same as it respects scarlatina. And I cannot see how the causes of these diseases can deleteriously affect the patient if she is protected by having previously had the diseases.

I am now aware that an attack of erysipelas at the time of accouchment greatly endangers the life of the patient, like probably most any other inflammatory disease. But admit the possibility of the causes of these diseases affecting the patient deleteriously, could we prevent it by douching the vagina, as the cause does not gain entrance into the system through that channel?

We have never heard of the causes of these diseases proving deleterious to any other character of patients, no difference what might be the character of the disease with which they were affected, provided they were protected by a previous attack. Of course I alluded to the communication through clothing. We all know that a hospital ward may become so infected with the cause of erysipelas as to render it dangerous to perform a surgical operation. In fact, I have known on one or more occasions the epidemic influence to be so great, even in the country, the same thing happened. The last epidemic of this kind was in 1862-1863, during the winter months, when we could not vaccinate a person with safety, and although there was a case of small-pox in the neighborhood, we had to cease vaccination. Does not puerperal fever at times prevail epidemically without our knowledge being capable to comprehend its cause? This occurs also as it regards scarlatina and other diseases. You cannot prevent the occurrence of scarlatina by isolation of the children when the disease is of epidemic form, no more than you can influenza. There will always be some things that we are unable to account for in our philosophy, and I think epidemic influence is one of them.

I regard it as a dangerous doctrine to proclaim that puerperal fever is entirely due to heterogenous septic matter, and is a preventable disease. I think with our eminent accoucheur Fordyce Barker and others that we may, and occasionally do, have the *old* form of the disease, to wit: in-

flammation of the womb and adjacent structures. I will agree that a great deal can be done, and has been done in lying-in Institutions by sanitary means, to prevent the disease, and have thought strange that such death-holes were allowed to remain uncleared to within the last score of years. I have also been unable to account for the fact that patients were allowed to be placed in such Institutions, when it was so well known to the managers the great dangers attendant on such admissions; especially when they knew, at the same time, that no such dangerous influences existed outside. All the cases of puerperal fever that have occurred in my practice—some four in number—have been isolated ones, when no other cases existed in the country, and when I was attending no cases of contagious or septic disease. To be sure I have had, like most other accoucheurs, cases of what are ordinarily known or termed milk fever, the patient having chilly sensations, followed by reactive fever, which would last twenty-four to thirty-six hours. Then again I have had one or more cases where fever resulted from lacerated cervix, lasting from three to five days. But fortunately I have never seen an epidemic of the disease, although I have been practicing medicine, mainly in the country, forty-five years. Aside from the cases above alluded to I have been called to see a few in consultation, one of which was a case of septicæmia resulting from a dead embryo of about three or four months.⁵ The patient complained of chilly sensations on Friday—so much so as to induce her to think she had the chills, and caused her to take quinine. She was not aware of the fact that she was pregnant, then nursing a baby 8 months old. These chilly feelings continued, and on Sunday she had labor pains, which that evening expelled the foetus, leaving the secundines behind. The attending physician did not deem it essential to empty the womb and waited the expulsion of its contents. This state of things continued until I saw her on the following Wednesday noon, when the lochial discharge was very offensive and her temperature high, alternating with rigors.

I immediately emptied the womb and washed it out thoroughly with carbolic solution, 1 per cent. This was repeated again that evening, after which the discharge was devoid of unpleasant odor. The placenta was entirely putrid.

Now here was a case of septicæmia coming on before even the membranes were ruptured; at least there had been no pain or discharge until two days after the rigors and fever set up. The question now is, how did the cause enter from without? We may entertain very plausible theories in regard to disease, but every now and then we meet with a case that we are unable to account for on our preconceived hypothesis. I

think, in this particular, respecting the cause of puerperal fever, the pendulum is being allowed to swing too far to the left. Then again, I think too many great men entertain too great a dread of pathogenic germs in the atmosphere. I never could believe that the atmosphere of ordinary sanitary localities was permeated with disease producing germs. Were this so, the life of man would be much shorter than it is; in fact, the world would be in danger of being soon depopulated; especially would this be the case, if, as it is claimed, they multiply so rapidly. Neither do I believe, as some maintain, that all diseases are due to specific germs. If this theory was true there would be but few people well at any one time, as it is contended that in a case of sickness is the time when the germs increase so rapidly, and of course would make it dangerous for both nurses and physicians to render attention. As far as this theory is concerned it might be said that history is repeating itself, as this doctrine was promulgated by the humoral pathologists in the 17th century. They contended that all diseases were due to a species of fermentation in the blood.

In order to illustrate the fact that all bad effects are not due to germs in the atmosphere in treating wounds, I will mention the results of open stump dressings in the surgical wards of Bellevue Hospital by Dr. Dennis in 1876, while interne in the service of Dr. James R. Wood.

The mortality at that time in that Institution was 35 per cent. of the surgical operations, and rarely a case escaped abscess pyæmia or erysipelas. He reported fourteen successive cases of amputation treated with open wounds, simply placing over the stump a thin cloth moistened with a weak solution of carbolic acid. They all recovered without symptoms of pyæmia, and with but little rise of temperature. This was done without the use of spray, and simply with the dressing alluded to.

In the opinion of Dr. D., the difference in favor of the open wound dressing over that of closure and bandaging was due to better drainage; that the old method confined the discharge within the wound, producing high temperature, pyæmia, etc.

Prof. Link, of Indianapolis, also has reported greater success in the treatment of amputations with open stumps, over that of the closed dressing.

Now we will for a moment inquire into the germicidal properties of some of the most prominent of the so-called antiseptics.

At the head of these stand the bichloride of mercury which is the germicide *par excellence* above all others; but at the same time, perhaps, the most dangerous. It destroys all bacterial life promptly, but when uncautiously used on large raw surfaces may result disastrously to the patient, by absorption.

Yet, can this active and destructive germicide be

⁵ See Practitioner and News, April 26, 1890

strictly an antiseptic where it may, and frequently does produce, perhaps, the worst state of sepsis of any known drug or substance aside from its chemical congeners? This is a question I have frequently thought of in connection with it as an antiseptic, and could but think it somewhat paradoxical. In coming in contact with blood or serum the albuminate of mercury is formed and its virtue as a germicide is destroyed.

Next, the corrosive chloride in general use, has been carbolic acid. But it has been, within a few years, found to be an uncertain germicide, as well as a dangerous poison—especially is this the case when applied sufficiently concentrated to destroy microbes. Dr. Marcy says, 1-40 generally fails to destroy bacteria, and 1-20 should be in contact several minutes to be effective, which could not be done with safety to a raw surface. Dr. Sternberg says, a 5 per cent. solution failed to destroy the micrococcus from pus; and remarks that as a disinfectant it must be at least 5 per cent. strong, and allowed to be in contact two hours at least. Dr. Koch states "that the surgeon who washes his hands and instruments in a solution of the strength of 1-40, and trusts thereby for the protection of his patients, would certainly endanger them to infection." Of course such strong solutions could not, with safety, be applied to raw surfaces sufficiently long to produce germicidal effects. And lately Prof. Billroth has issued a note of warning against the use of carbolic acid on raw surfaces on account of its poisonous effects, several cases of gangrene from its use having come under his observation. There is but little doubt, that a great number of patients have been destroyed by the improper use of both carbolic acid and corrosive sublimate. In the reports of lying-in hospitals of deaths due to puerperal septicæmia, those occurring from other causes during the puerperal state were not included in the list, and in all probability many died from the excessive use of these irritating substances, during the height of the fashion of injecting the vagina and womb as a prophylactic measure to septicæmia. Many cases in private practice have been reported, and it is very likely that many more were left unreported. Such dangerous remedies, as much as possible, should be withheld from the hands of the ignorant. Of all the so-called germicides, these two have been the most used, and that of carbolic acid the longest.

Next to these in the list, perhaps, oil of eucalyptus, iodoform and boracic acid have been mostly relied on, neither of which, according to late observations, have much, if any, germicidal virtue. Iodoform, which is regarded as being third in the list as to its germicidal properties, has been found, in that particular, to be practically inert, the bacteria growing in it as a culture bed. Turpentine, balsam of Peru, thymol, nap-

thalin, chloride of zinc, alcohol, etc., possess slight germicidal properties in concentrated solutions. Iodoform, with many other things in the long list, have been relied on as germicides, and the successful results placed to their credit. This is another reason why I think our fears have been unnecessarily excited as to the great number, and danger of germs in the atmosphere. If we fight an invisible foe with harmless weapons and come out conqueror, it should excite some doubt in our minds, either as to the virtue of our arms or the presence of the adversary. But notwithstanding the want of germicidal virtues in many agents that have been, and are still being used as germicides, I do not wish to be understood that I regard them as useless as remedial agents. On the other hand, I regard many of them as being, in the proper strength, as among our best remedies, both internal and external. Time will not permit me to go into detail as to their remedial virtues, but I regard them in the light of alteratives rather than that of germicides. In fact a number of them are so useful in this particular we are unable to dispense with them in practice. Among the germicides in recent use is creolin, which has been greatly lauded for its virtues in this regard, but it is learned that its virtue in the strength prescribed is virtually inert. It is said to promote suppuration.

My object in writing this paper is to caution the medical brethren against extreme assertions as to the success of any special plan of treatment, and making it incumbent upon all to closely follow in minutia and detail such theories and plans until they have been thoroughly tested and found, without doubt, that success necessarily and essentially depends upon such close adherence; and thus avoid liability to malpractice suits by those failing to be fashionable. I am finding no fault with Mr. Lister and his early followers for instituting and practicing a new principle in surgery as it respects hospital practice, but only in being so dogmatic in their assertions that success entirely depended on closely observing every detail in his method. This should not have been proclaimed until it was thoroughly proved to be so. As before remarked, a short time only was required to prove the erroneousness of the assertion. But in the meantime, many able men who could not see the necessity of such armamentarium in surgical practice, to say nothing of its expense and inconvenience, had they failed in any case, would have been held responsible for such failure.

Simply because it has been learned that this great success was due to simple cleanliness rather than to the germicidal and antiseptic virtues of the agents used in dressing wounds, the fame which attaches to the name of Lister should not be in the least diminished. But for his introduction into practice of a new principle, the inauguration of

asepsis in treating wounds, as well as diseases, would have, no doubt, been somewhat deferred. His success over the old time practice induced men of brains to commence thinking, which is the only way great reformations can be brought about. But unfortunately great discoveries are, in their application, many times carried to excess, which, doubtless was the case with the Lister antiseptics, as it respects their use in obstetrics. The conservative views entertained heretofore as it regards parturition were soon exchanged by many for those of a radical character. Instead of regarding parturition as a natural and physiological process, it was deemed to be pathological, and the puerperi was looked upon in the same light as a case of amputation, and of course must be treated accordingly. This view led to the use of injections of irritating and poisonous drugs to prevent septicæmia.

I only wish to put in a plea of conservatism, by which the medical pendulum will be prevented from swinging too far to one side.

GUNSHOT WOUNDS OF THE ABDOMEN; WITH CASES.

Read in the Section of Surgery and Anatomy at the Forty-first Annual Meeting of the American Medical Association, Nashville, Tenn., May, 1890.

BY DAVID BARROW, M.D.,
OF LEXINGTON, KY.

J. G., æt. 15, was shot in the abdomen at 7 p. m. on February 8, 1890. The wound was one inch and a half to the left of and on line with the umbilicus, and was made by a 32-calibre ball. The pistol was discharged at close range. I saw him at ten P.M. He was then in bed with the lower extremities flexed; vomiting was frequent, and he complained of great abdominal pain; the facial expression was anxious, and the abdomen was hard and retracted; pulse was over a hundred and rather weak; shock was evident but not extreme. The wound was not probed, but it was plain that the cavity had been entered and all the symptoms pointed to visceral wounds. Laparotomy was indicated, and at eleven o'clock, by lamp light, I operated, assisted by Drs. Bryan, Keller and Scott. Chloroform was administered and several times during the operation the patient's condition was alarming. An incision of four inches was made in the linea alba, between the umbilicus and pubis. A loop of the intestine presented, but owing to the extreme rigidity and retraction of the abdominal walls, manipulations were unsatisfactory, so I enlarged the incision to six inches. Passing two fingers into the cavity the wound of entrance was felt; the ball had passed backward and upward. Tracing the intestines I found six perforations, four in the small and two in the large bowel. These were closed by the Czerny-Lembert suture, using fine intestinal silk,

and in one of the perforations of the large bowel, on account of the great bruising and ecchymosis, I reinforced the stitches and bruised tissue with omentum. There was not much hæmorrhage and no feces were seen. Irrigation was copious and thorough, and considerable water was left in the cavity. A glass drainage tube was inserted, with one end between the bladder and rectum; the incision was closed with silk. The duration of the operation was an hour and fifteen minutes. Chloroform was taken badly, and a great part of the time, all intra-peritoneal manipulations were resisted by the forcible contraction of the abdominal muscles, and the operation was thus greatly prolonged. Boiled cistern water was used. Antiseptic dressings were applied, and the patient was greatly shocked when placed in bed; the heart's action was rapid and weak, and the respiration was shallow. Reaction was slow and he vomited occasionally for eight hours. On account of some pain and great restlessness morphine was given in small doses for ten days. The drainage tube was emptied frequently and was removed on the sixth day. Convalescence was uneventful. The bowels were moved on the seventh day, and stitches taken out on the eighth. There were several stitch abscesses and a small superficial part of the incision healed by granulation. Three weeks after the operation, on account of imprudence in diet, he had a severe attack of indigestion, with much vomiting, and was greatly exhausted. He is now perfectly well.

C. D., æt. 13, was wounded by a 32-calibre ball at four P.M., July 1889. I saw him a few minutes later and had him taken to his home several squares away on a stretcher. I operated at 8 P.M., assisted by Drs. Brown, Molloy, Colman and Evans. At the time of operation there was no symptoms indicating serious injury; there had been no vomiting; the pulse was eighty and regular; and the boy was comparatively comfortable. The ball had entered two inches to the right of and one inch below the level of the umbilicus, and a probe passed directly into the peritoneal cavity. Chloroform was administered, and I made a four inch vertical incision, and included in the incision the bullet wound. The ball had passed downward and to the right. Tracing the intestines five perforations were found, two in the ilium and three in the cæcum. These were sutured with fine silk by the Czerny-Lembert method; the cavity was irrigated with boiled distilled water; the abdomen was closed and antiseptic dressings applied. Duration of operation a half hour. There was no shock when put to bed and he rallied promptly from the anæsthesia. For two days he did well when the temperature went up to 101° and he began to vomit. The abdomen was reopened, and irrigated with boiled distilled water and a rubber drainage tube in-

sented. He died at the end of the third day of septic peritonitis. *Post mortem* demonstrated all perforations securely closed; there was no leak when the gut was distended with water; some loops of the intestines were adherent, and there were several ounces of bloody fluid in the peritoneal cavity. The boy should have recovered, and, I believe, would have, had I inserted a glass drainage tube at the time of the operation. The operation was done in a negro's cabin, and the hygienic surroundings were most unfavorable.

In a paper read at the last meeting of the Kentucky State Medical Society on "Four Cases of Gunshot Wound of the Abdomen Treated by Laparotomy, With Remarks," and published in *THE JOURNAL*, June 15, 1889, I reported all of my cases up to that time. Since then, I have had the two just reported, making six laparotomies I have done for gunshot wounds of the abdomen. Of the first four, three died and one recovered, and of the last two one died and one recovered.

Dr. T. S. K. Morton, of Philadelphia, read in the Surgical Section, at the last meeting of this Association, an instructive paper on "Abdominal Section for Traumatism," and in it gave a complete table, containing nearly all the reported cases of gunshot wounds of the abdomen treated by laparotomy. From a study of this table, and my own cases, I am enabled, I think, to demonstrate much that is still apparently unsettled in the minds of some surgeons relative to the management of these wounds. The table contains one hundred and ten cases, and these should be sufficient to establish many facts in the management of such wounds. That laparotomy should be done when called to one of these patients is no longer debatable, for with the "let alone" plan of treatment nearly all die, and with laparotomy a third recover. This mortality will certainly decrease, and I hope before many meetings of this Association shall have passed by, and when surgeons learn to act promptly, that half or even more of these cases will be saved. The necessity for prompt action is well shown—of the thirty operated upon fifteen, or more, hours after the wounds were received, six recovered and twenty-four died, giving a mortality in these delayed operations of eighty per cent. The great danger is septic peritonitis, and that will often appear very quickly; frequently in a few hours there is evidence of its presence. We should operate to prevent this septic condition that is so certain to follow wounds of the peritoneum, and to procrastinate until this septic inflammation is inaugurated, is a timid and disastrous method of dealing with these wounds, and will necessarily be followed by a very large mortality. Of the seventy-four deaths recorded, thirteen were due to septic peritonitis, directly dependent upon delayed operations. When the operation has been delayed

and there is septic infection and shock, the patient can stand but little manipulation, and if the operation be prolonged from any cause, he may die on the table or may never rally from the shock. An ideal operation cannot be done when this is the condition, so we must "operate strictly to save life." No good will be accomplished by closing the wounds neatly, if the patient dies from the prolonged effort necessary. In these desperate cases, I believe more can be saved by opening the abdomen, inserting multiple drainage tubes, irrigating frequently, and adopting the open peritoneal treatment.

In only nine of the cases is the duration of the operation given, and in every instance where it was much prolonged, the patient died. Dogs and other animals will die of shock, if kept under the influence of an anæsthetic for a long time, and the viscera manipulated, and it will be disastrous to anticipate a favorable termination in gunshot wounds, when from two to four hours is often spent in doing the laparotomy. As to the evidence the surgeon should have to justify his opening the abdomen, I think the facts will bear me out in this very positive statement: When there is proof of the ball having entered the peritoneal cavity, it is the duty of the surgeon to open the abdomen and remedy, as best he can, the abnormal conditions there found. Eight times the abdomen was opened and no viscus found wounded. Six of the operations were done promptly and all of the patients recovered; but in two, the operations were delayed, in one to the fourth and in the other to the sixth days, and both resulted fatally. *Post mortem* examinations proved the absence of visceral wounds, and that septic peritonitis had been the cause of the deaths. Had these two patients been operated upon promptly, as were the other six, and the peritoneal cavities thoroughly cleansed, they too, I believe would have been saved. If the six had not been treated promptly, the probabilities are, that some of them would have died of septic peritonitis. Believing, when the bullet has penetrated the peritoneal cavity, that the abdomen must be opened and the cavity cleansed, even should the alimentary canal escape injury, I can see but little use of the hydrogen gas test. There are twenty-one cases where the alimentary canal was not wounded, eleven recovered and ten died. Of course the test would have given negative results, but I venture none of us will doubt but what the operations should have been performed. The test has been applied to nine cases and failed but once to indicate the true condition of the alimentary canal, and then there were five perforations of the small intestines. In another the result was negative, the operation was delayed six days, and then done for septic inflammation, and the *post mortem* examination demonstrated the absence of visceral wounds.

The hydrogen gas test can only be of use to prove the thoroughness of an operation just before closing the abdominal incision. Seven times perforations were overlooked, and had the gas been used, they might have been found and closed. Dr. Senn detected an overlooked perforation with the gas before closing the incision, and succeeded in saving his patient. In wounds of the liver the hæmorrhage must be controlled. Nine of the fifteen cases reported died. To stay the hæmorrhage we may suture the wound, pack it with gauze, or apply the cautery. A glass tube inserted through the track of the ball, as has been suggested, might be of benefit in controlling the hæmorrhage, and by carrying off all septic materials. Styptics might be applied to the bleeding surface through the tube with good results. Of the five kidney wounds all of the patients died except one, and she was saved by removing the wounded kidney.

In abdominal operations there is nothing more essential to success than thorough irrigation, and in laparotomy for gunshot wounds, this is, if possible, more important than in laparotomy for other causes, for here the peritoneal cavity often has thrown into it septic material from the digestive track. It is most difficult indeed to wash the peritoneal cavity clean, and I have no doubt that, in many of the cases where irrigation is noted, the cleaning process was imperfectly done and practically useless. The table can throw no light on this subject, but to every one who has operated in the abdomen, no argument will be necessary to convince him of the importance of thorough irrigation. The best and simplest irrigator I have ever seen is one used by Dr. Joseph Price, of Philadelphia, consisting of a funnel, a rubber tube and a large perforated nozzle. The force of the current can be regulated by elevating or depressing the funnel, and if the nozzle be properly directed amongst the intestines, all loose materials will be floated through the incision. The effect of drainage is forcibly shown, and though out of the one hundred and ten operations, the use or non-use of the drainage tube is mentioned in but twenty-nine, these are sufficient to justify the strongest conclusions. Of the twenty-nine cases drainage was used in twenty-one, and in eight there was no drainage employed; of the drainage cases six recovered and fifteen died, and of the non-drainage cases two recovered and six died, in the former a mortality of $71\frac{1}{2}$ per cent., and in the latter of 75 per cent. This is a stronger argument than at first appears, for the use of the drainage tube for the cases usually regarded by surgeons as requiring drainage, are the more desperate ones, and those where it is usually dispensed with are considered favorable. So necessary is drainage, that I will, even at the risk of being tedious, refer in detail to some of the cases where

drainage was employed and others where it was not. Of the six recoveries where drainage tubes were used, five were desperate cases and could not have been saved without the drains. In one case there was "intense peritonitis" at the time of operation, and the tube was kept in place for ten days; in another the operation was delayed for 108 hours, and besides the perforations, there was in the peritoneal cavity, bloody serum and pus; a third was Dr. M. Price's case, the liver and right kidney were wounded, and the latter organ was removed, and during convalescence several small hepatic abscesses formed and were discharged; and in two of the three remaining cases, the wounds were extensive, and blood, food and feces were found in the peritoneal cavities. In the fifteen fatal drainage cases the conditions were extreme and the drains in none of them could have accomplished much. In two of the cases perforations were overlooked; the operations were delayed in four; and in four others the deaths were due directly to hæmorrhage and shock; in one a divided ureter was undetected; another died from opium; and in one the "drain had not worked." The traumatism in the other two cases were extensive and it would have been exceptional for either one of them to have recovered. Of the eight non-drainage cases two recovered and six died; of the two recoveries there were no wounds in the alimentary canal in one, and in the other, only one perforation of the small intestine. Of the six that died septic peritonitis caused death in five, and in the other there was profuse hæmorrhage from the renal artery. Had drainage been employed in these cases, I believe more of them would have lived, for if there is any one thing, next to irrigation, that can guard against septic infection, it certainly is the drainage tube.

In one of my patients I believe the omission of the drainage tube was directly responsible for death, and shall always feel that had I used drainage my patient would have recovered. The operation was, with that exception, the most satisfactory I ever did, it was done promptly and quickly; there was no shock before or after the operation; and the perforations were all found and demonstrated at *post mortem* to have been securely closed. Everything went along well until the peritonitis set in, and then death came rapidly, notwithstanding the wound was reopened, the cavity irrigated, and a drainage tube inserted.

In wounds of the intestines so extensive as to materially diminish the bowel lumen, should the Lembert suture be used, intestinal anastomosis promises better results than exsection of the wounded intestine. All of the eleven patients died where exsection was resorted to.

To reinforce a perforated or bruised intestine with omentum is of great importance. Fre-

quently around a perforation there is some bruised tissue, and this may slough if the perforation is simply sutured. In one of my cases I stitched the omentum over the perforation and bruised tissue, and my patient recovered.

The following are the causes of death in the seventy-four fatal cases: Septic peritonitis, 29; hæmorrhage, 15; delayed operations, 13; shock, 9; overlooked perforations, 3; and from other causes, 5. I believe the study of these fatalities, with the other facts presented, will make it apparent that the suggestions made, should be considered as established rules in the management of gunshot wounds of the abdomen. I hope in future that such causes of death will be eliminated as septic peritonitis, due to omissions of irrigation or drainage, delayed operations, shock from prolonged operations, and overlooked perforations.

From a careful analysis of 112 laparotomies for gunshot wounds of the abdomen, I feel warranted in drawing the following conclusions:

First. Gunshot wounds of the abdominal cavity should invariably be treated by laparotomy. With the operation the mortality is 66.27 per cent; without the operation more than ninety per cent. die.

Second. It will be safer to always open promptly and cleanse the peritoneal cavity, even should the viscera escape injury. Two patients died of septic peritonitis, without visceral wound, because this was not done; the six exploratory operations terminated favorably.

Third. Symptoms are unreliable, and the surgeon should never wait for them, if the ball has penetrated the cavity. This must always be ascertained, either by the use of an aseptic probe, or by enlarging the bullet wound and following its track through the abdominal wall. In delayed operations the mortality is eighty per cent.

Fourth. In every instance mentioned, where the operation has been greatly prolonged, the patient died. Shock from the anæsthesia and manipulation is always considerable, and all possible haste should be made.

Fifth. In extreme shock, rather than occupy too much time in suturing the perforations, adopt the open peritoneal treatment, and trust to irrigation and drains to save the patient. Nine deaths were due to shock.

Sixth. In destructive wounds of the intestines, lateral anastomosis promises better results than exsection. All of the eleven died where exsection was done.

Seventh. By utilizing omentum we can sometimes close destructive wounds, without diminishing the intestinal lumen too much, and can reinforce bruised intestinal tissue that would otherwise be dangerous to leave. In one of my successful cases the latter procedure was adopted.

Eighth. In liver wounds the hæmorrhage must

be controlled and the peritoneal cavity cleansed. In some cases it may be well to drain the liver wound separately, by inserting a glass tube, as suggested by Dr. M. Price. A fatal case of mine, with bile duct cut, might have recovered had I used the tube.

Ninth. The 'kidney must' be removed if wounded and bleeding. This was done in the only successful case; and in the other four cases, all fatal, the kidney was removed in two and left in two.

Tenth. The hydrogen gas test is only of use in demonstrating the closure of all the perforations, and should be used just before closing the abdominal incision. Dr. Senn detected an overlooked perforation by this means and saved his patient.

Eleventh. Irrigation should always be copious and thorough, and never omitted when the digestive track is perforated. It is the best treatment we have for shock; diminishes the thirst that is so often annoying; and is the best means of guarding against septic peritonitis. Twenty-nine of the seventy-four deaths were due to this septic infection.

Twelfth. The drainage tube should rarely be left out. I have never known it to do harm, and certainly some of the recorded cases would have done better had the tubes been inserted. The omission of the drainage tube was the cause of death in one of my patients. In drainage cases the mortality was less than in non-drainage cases, notwithstanding the former were in a far more desperate condition at the time of operation than the latter.

FRACTURES OF THE BASE OF THE SKULL, AND THEIR TREATMENT.

Read by Title in the Section of Surgery and Anatomy, at the Forty-first Annual Meeting of the American Medical Association, Nashville, Tenn., May, 1890.

BY HAL C. WYMAN, M.S., M.D.,

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Benjamin Bell, of Edinburgh, writing about 100 years ago, said: "A great variety of symptoms are enumerated by authors as indicating a compressed state of the brain from external injuries, but the most frequent, as well as the most remarkable, are the following: giddiness, dimness of sight, stupefaction, loss of voluntary motion, vomiting, apoplectic stertor in the breathing, convulsive tremors in different muscles, a dilated state of the pupils even when the eyes are exposed to a clear light, paralysis of different parts, especially of the side of the body opposite to the injured part of the head, involuntary evacuation of the urine and fæces, an oppressed and in many cases an irregular pulse, and when the violence done to the head has been considerable, it is commonly attended with a discharge of blood from the

nose, eyes and ears. Some of the milder symptoms, such as vertigo, stupefaction, and a temporary loss of sensibility, are frequently induced by slight blows upon the head, and as they often appear to be more the consequence of a shock or concussion given to the brain, than of compression induced upon it, they commonly soon disappear, either by the influence of rest alone, or by other means to be hereafter pointed out."

I have quoted these lines from the great surgeon because they indicate so clearly the symptoms which may in whole or in part present in a case of fracture of the base of the skull, and also indicate the distinction to be made between the terms concussion and compression. I have often thought it was unfortunate that these terms must be used in defining the state of the brain after great violence has been done to it. Would it not be better to indicate the pathological condition in these respective consequences of violence to the head, and say, injury to the head with or without internal hæmorrhage. We could leave the term "compression" for use in those cases in which the symptoms so carefully enumerated by Bell have developed without a history of recent injury. Fractures of the base of the skull are so constantly fatal, that men of wide experience are loth to believe they ever terminate in any other way.

I have examined, post-mortem, thirty-four cases of fracture of the skull resulting in death, of which number twenty-six were fractures of the base of the skull. In the majority of them the hæmorrhage which caused death was poured into the space between the bone and the dura mater, and the middle meningeal artery was wounded. In the minority, the hæmorrhage poured into the substance of the brain from rupture of the vessels of the pia mater, or the cerebral arteries, and death was probably due to concussion and disturbance of brain cells. In many of the cases the patients lived several days after the injury was received, before the pressure of the clot on the brains had squeezed the vitality entirely out of them. I could not help contrasting these cases of fracture of the base with cases of fracture of the vault of the cranium, in which the hæmorrhage was poured out on the cerebral convexity. The majority of such cases recover, as is well known, when properly treated. It occurred to me that if we could devise some means by which we could abstract the clot from the base of the brain, precisely as we abstract it in cases of fracture affecting the cerebral convexity, we might cure many cases which now end in death. It is a well known fact that the majority of fractures involving the cerebral convexity will recover after trephining, while fractures of the base of the skull in almost every instance result fatally, and are very rarely trephined. This may be owing to the supposition that the fracture of the base of the skull involves

the pons, the medulla, and those parts of the brain more essential to life, and that death is due to such injuries rather than the presence of the clot. But since in almost all cases of death following fracture of the base of the skull, death results from pressure rather than from inflammation of the brain, I do not see why an operation which removes the clot and the pressure, would not be the right thing to perform. No doubt the operation has not been commonly performed, because of the great difficulty of reaching the basal portion of the brain, through the large muscles which cover it. After a little attention to the history of trephining, I find that the earlier operators used the trephine much more freely than we do nowadays. There is no difficulty in finding cases where they perforated the skull numbers of times, before finding the clot, and they did not seem to hesitate for fear the frequent use of the instrument that way was endangering the patient's chances of recovery. I find also that they boldly cut away the strong muscles which are attached to the occipital bone, the sphenoid, and the temporal, to bare the bone and trephine at the point where the clot could easily be removed. Now if we were to use the trephine with the same freedom with which it was formerly used, I think that our modern antiseptic methods would give us better results than the ancients obtained.

The treatment which we commonly apply to the fracture of the base of the skull is equivalent to doing nothing at all. Simply taking a little piece of cotton, dipping it in an antiseptic solution, and then stuffing the patient's ear with it, is about all that is usually done.

To distinguish the fracture of the base of the skull is not always easy. There are several signs which are likely to be of value. First and most important of these is the general fact that fully 80 per cent. of all fractures of the skull involve the base—this fact makes the danger of mistaken diagnosis very slight. Orbital ecchymosis, watery discharges from the ears and nose, or bloody discharges from the ears and nose, paralysis of the cranial nerves, are all signs which are sometimes present in cases of fracture involving the base of the skull.

The presence of orbital ecchymosis is significant as indicating the existence of a fracture through the anterior fossa of the base of the skull. While the presence of paralysis of the cranial nerves, the third nerve for example, is unmistakable evidence of the presence of a fracture of the middle fossa.

The escape of blood from the ears, or the escape of serous fluid, in my experience, has been comparatively rare, and is in my judgment one of the weakest of all the signs which are commonly supposed to have to do with a fracture of the base of the skull. Its absence is practically no evidence that a fracture of the base does not exist.

In any case in which the trephine is applied to the vault of the cranium and the elevation of a depressed fracture or the removal of a clot from the cerebral convexity does not improve the condition of the patient, I would trephine the base of the skull and expose the fossæ which have been fractured, and contained clots twenty-six times in the thirty-four autopsies which are the basis of this study.

I believe the most important point in the diagnosis of fracture of the base of the cranium, in cases admitting of treatment by the operation of trephining, is an interval of sense following an injury to the cranium. This sense interval cannot be emphasized too much. It appears in this way: A man meets with a fall, or receives a blow on the head. He is shocked, for a time unconscious, perhaps unable to say how the injury was received; he walks to his home, several blocks perhaps, and arriving there sinks into a chair, is faint, vomits perhaps, but speedily becomes unconscious; in this unconscious condition his muscles may tremble, he may be nervous or irritable, may be paralyzed upon one side or the other, his tongue may be protruded to the right or the left, his pupils may be contracted or dilated, it makes no difference; the important thing is the fact that after an interval of sense following a stunning blow the man again becomes unconscious, and sinks into a condition in which death is imminent, unless the clot is removed. The presence of paralysis, the size of the pupils, and the condition of the stomach, are of little or no value as diagnostic signs; the one important thing is to recognize the existence of an interval of sense, and it means simply that the violence has caused a rupture of a blood-vessel, that in consequence of the rupture of that vessel, a clot has formed between the dura mater and the bone, or within the membrane, and it is gradually squeezing the vitality out of the patient, and will continue to do so until it is removed. Now, one of the great difficulties that we have to deal with in these fractures of the base of the skull is the removal of the clot of blood which adheres so firmly to the membranes that, notwithstanding our opening is an inch or more in diameter, the clot will not readily flow away. It must be entirely removed in order to do the patient the greatest possible good. It will be necessary, in many of the cases, to make more than one opening; at least, to make a second opening, removed a short distance from the first. Then a scoop must be used because of the adhesion of the clot.

I have seen numbers of cases in which the patients have not been improved by the trephine, while the autopsy showed the presence of a clot too large to be removed through the opening made by the trephine, and the firm adhesion of the clot to the membrane showed the need of a scoop for the purpose of facilitating its removal. Such an

instrument I have made out of a watch spring, and found it very efficient. The temper is taken from a piece of watch spring about 6 inches long by holding it a moment in a gas jet, then it is folded on itself, making a loop about $\frac{1}{2}$ inch in diameter. The shaft of the instrument can be bent in any direction, so that it can be passed through the opening made by the trephine, and the anterior, middle and occipital fossæ of the base of the skull be thoroughly scooped for clots.

The great point in all of these cases, the 80 per cent. of all cases of fracture of the skull, is to find the location of the clot, since death in the majority of instances results from the pressure of the clot of blood upon the base of the brain. Now, owing to the fact that eighteen out of the thirty-four cases which came under my observation presented a clot, the result of a rupture of the middle meningeal artery, the great majority of all the cases would be properly reached, the clot properly scooped away, providing the trephine was applied at a point where the middle meningeal artery could be easily reached. Such a point is found immediately above the zygomatic arch on the affected side. To apply the trephine at such a point requires an extensive section of the scalp, and a dissection of the temporal muscle, with ligation sometimes of the temporal artery. It is dangerous also to certain branches of the seventh pair of nerves, although I have never been so unfortunate, notwithstanding I have made the operation a number of times, as to divide the facial nerve and blemish the patient. The gravity of the case, however, which makes an operative procedure necessary, is sufficient to justify the risk of wounding nerves which might impair the facial expression.

If palpebral ecchymosis, and the character of the violence, point to the presence of the clot in the anterior fossa, trephine just above the superciliary ridge, on each side if need be, introduce the scoop and clean out the fossa.

If the clot is localized in the occipital fossa, divest the trapezius muscle from its attachment to the occipital bone, apply the trephine and use the scoop. The skull and scoop which I now exhibit to you are intended to illustrate the fact that the trephine alone cannot always compass these cases, and that it has a convenient and powerful ally in a properly tempered scoop which may be pushed between the dura and the bone in any part of the cranium with great ease, and between the membranes when delicately manipulated, without danger of raking away the cerebral substance which has been uninjured by the violence. In cases of gunshot fracture the greatest caution must be exercised in using it, or the brain substance, more friable than the usual clot, will be needlessly sacrificed.

I might summarize my views of fracture of the base of the skull in this way: Trephine all cases

which have had a sense interval; trephine the basal portions of the skull; trephine until the clot has been entirely removed with a properly constructed scoop.

GUNSHOT WOUND OF BRAIN; RECOVERY WITH BALL REMAINING THEREIN.

Read in the Section of Surgery and Anatomy at the Forty-first Annual Meeting of the American Medical Association, held in Nashville, Tenn., May, 1890.

BY J. LEE MCCOMAS, M.D.,
OF OAKLAND, MD.

As the profession is interested in the localization of lesions of the brain, and this case being one of an unusual type, I present it for your consideration, it being an accurate record, carefully noted while in constant attention at the bedside.

William C., æt. 16, right-handed, was accidentally shot September 29, 1889, at 2 P. M., by a companion, who was above him on the mountain side when the gun went off.

The cartridge is known as 22 short, and contains 3 grs. of powder; weight of ball, 28 grs., and conical. The ball entered a little below the internal end of the right arcus superciliaris about the attachment of the corrugator supercillii, passing through the frontal sinus downward and backward to the left, as indicated by the probe. Considerable hæmorrhage at the time he was wounded, and he kicked and threw himself about very much. Was carried home in an unconscious condition.

I was called to see him at 5:20 P. M. Found him lying on his back on a lounge, head elevated. Probe in wound $2\frac{1}{2}$ inches; brain protruding, and bleeding slowly; pupils dilated and insensible. The boy was still unconscious; vomiting at intervals, and blood in right nostril. T. $97\frac{2}{3}^{\circ}$, P. 52, R. 22. Pulse irregular and extremities cold. On gently touching the probe from side to side it dropped in track of ball; one inch deeper to left side I could feel no ball. I turned him on his right side, lowered his head, disinfected and cleaned wound, removed protruding brain when the coagulum came out, followed by a little flow of blood. I could find no spicula of bone, but probe passed freely in frontal sinus. I then applied iodoform gauze over wound. At 5:35 P. M. I gave him hypodermic of $\bar{5}$ j fl. ext. ergot and an enema of am. carb. and fl. ext. ergot; repeated it at 8:15 P. M. At 8:26 P. M. pupils responded. Testes drawn up close to abdominal ring. At 8:30, T. 98° , P. 63 and irregular; vomited, mucus rattling in throat, grinding his teeth; 11:38 P. M., has vomited about every hour and a half since 8:30 P. M.; P. 54, R. 22; surface very cold. Ordered carbonate of ammonia every two hours as an enema, and applied hot water bottles.

Sept. 30, 8:15 A. M.—Laid quiet all night, but

not in deep coma; T. $98\frac{2}{3}^{\circ}$, P. 60, R. 20. 2:23 P. M., comatose; T. 98° ; passed urine in bed; did not realize it. Lips greatly swollen and purple, wound dry; lies with knees drawn up and hands clasped between thighs. 7:30 P. M., bowels and urine passed in bed, but was very restless previous; put clean shirt on him, and the effort aroused him a little. 11 P. M., P. 52, comatose and skin cold. Gave 3 drachms whisky and 20 grs. carb. am.; later an enema of bovine. Lies quietly, no muscular twitching; arteries of head and neck very prominent and visibly pulsating.

Oct. 1.—T. 98° , R. 18, deep and slow. Fearing inflammatory symptoms, I cut his hair off close without disturbing him. He turned his head from side to side on the pillow, scratching it at intervals through the morning.



Oct. 2, 8:25 A. M.—Quiet night; T. $98\frac{2}{3}^{\circ}$, P. 60, R. 16; tears flow from both eyes; yawns frequently; is restless; rubs palms of his hands together; grinding teeth; the mucus in his throat troubles him very much; coughs and swallows with difficulty; had slight bronchitis a few days before accident. 10:55 A. M., lying more quiet; hands clasped over abdomen. I asked him if he wanted to urinate; he placed his hands on his penis, nodded "yes," and did so. Breath very offensive; became very chilly, shivering, skin very cold. Gave an enema of whisky, $\frac{1}{2}$ oz., with bovine, 1 $\bar{5}$, and he became more comfortable; I repeated it in half an hour. 4:35 P. M., opened his eyes, gazed at me with a confused stare; ptosis of left eye complete; right eyelid almost swollen shut; threw his head back to look at me; T. $99\frac{1}{3}^{\circ}$, P. 70, R. 21. 8:30 P. M., temperature being the same, I gave 10 grs. calomel, bowels being torpid.

NOTE.—The squint of right eye as seen in the engraving is of secondary deviation, caused by improper direction of the point of vision by the photographer. I was not present when the picture was taken.

Oct. 3, 10:50 A. M.—T. $98\frac{1}{2}^{\circ}$, P. 63, R. 18; rested well all night; is more conscious; sat up and drank soup and bovine; hands and arms very cold; right eyelid still swollen, and the wound very much tumefied; abdomen sunken; at a request buttoned his shirt at the neck; caressed baby sister; answered "yes" and "no" to questions by shake of the head. 1:45 P. M., gave an enema of carbonate of ammonia and per orem, 7 grs. each of calomel and jallap, as his bowels were still torpid; indicated his taste by a wry face; asked him if it was good; shook his head "no;" drank beef-tea and swallowed better; aphasia complete; frontal veins very large, no other to be seen; arteries of head very prominent. At 2 P. M. passed urine in urinal, at request; swallowed better. 4:45 P. M., repeated the calomel and jallap. 8 P. M., became very restless, passing wind; finally bowels acted in bed, and he appeared to realize what he did. This depressed him very much, and I gave him 2 drachms of whisky and bovine per orem. Slept till 10 P. M., when he became restless, and bed pan being placed he had an action of the bowels and urinated, then relapsed into an apparent sleep.

Oct. 4, 6 A. M.—Woke up and washed his hands and face; gave him a glass of whisky and water; took it in his left hand and drank it. Asked him if he wanted breakfast; said "yes," first word spoken since he was shot. Gave him 6 ozs. of beef soup, milk and bovine; then he requested a "*wink o' waha*" (for drink of water); took glass in both hands and drank. At 9:15, with great difficulty in articulation, made same request. Asking him if he understood all said to him, said "yes" plainly, at same time nodding his head. Evidently he understands what we say, as he smiles at a joke, but seems disposed to sleep. Right eye closed and lids stuck together; resists the washing of his eye, and it irritates him very much; wound dry and crusted over; all veins of head visible; when let alone, relapses into a sleepy condition; takes long and deep inspirations, but expires slowly; for "not now" says "*naw naw*;" lips and wound less swollen; arterial tension less; is very restless; turns from side to side; says "*bows hur mae*" for bowels hurt me; peristaltic action and passing wind. 10:30 A. M., expressed a desire to pass water, did so, and then drank a glass of milk; clasps his hands and revolves one thumb over the other; works great toe of right foot; T. 98° , P. 61, R. 16; surface cold; called for "*sanin goo tu eat*;" "what would you like?" he replied, "*stu oyter*;" gave soup and bovine; testes down in scrotum for first time since injury; on irritation of genito-crural, they respond promptly; tested his sense of smell; put tincture of camphor to his nose; said it was "*sine kine camper*;" articulates no better. 3 P. M., gave carbonate of ammonia enema and shaved his head; bowels acted and urinated; he

asked for "*ba pan*;" action depressed him, and I gave $\frac{1}{2}$ oz. of whisky. 8:35 P. M., T. 98° , P. 60, R. 18; lies as if sleeping; skin very cold; rouses up if spoken to, and answers intelligently, though not distinctly, and becomes greatly excited when we do not understand him; sighs often and turns in bed.

Oct. 5, 10:20 A. M.—T. $98\frac{1}{2}^{\circ}$, P. 59, R. 15; passed a quiet night; very irritable; flies cause him to swear fearfully, but not distinctly; raves if requested to repeat; when let alone, relapses into a quiet condition with closed eyes, but if a fly alights on him he becomes excited. During the night called for milk and water frequently; is quite rational; arteries not to be seen, and veins not so full. 10:35 A. M., gave a drink of whisky ($\frac{3}{4}$ ij) and water; asked him what it was, said "*whisty and waha*;" right eyelids stuck together, but less swollen; pupils respond promptly. I told his mother to make a cap for his head to keep the flies off; half an hour afterwards he called for it, and became angry because it was not ready. Requested to raise the window curtain to get more light. 1:40 P. M., T. $98\frac{3}{4}^{\circ}$, P. 55. 2:40 P. M., T. 99° , P. 60, R. 16; ears very red; asked for "*wink o' waha*;" sat up and drank perfectly; tries to talk; cries and gets very angry and swears because we cannot understand him; puts tongue out well, very slightly inclined to right side. 6:40 P. M., T. $98\frac{3}{4}^{\circ}$, P. 51, R. 17; seems sleepy but easily aroused; smiled and recognized a friend and called him by name.

Oct. 6, 12:20 A. M.—I was sent for in great haste; found his P. 50, T. $98\frac{1}{2}^{\circ}$, R. 15; very weak and breathing hardly perceptible. Gave him 2 drachms of whisky and water per orem, and $\frac{1}{2}$ oz. of whisky and 10 grs. of carbonate of ammonia as enema in half hour thereafter. 1:10 A. M., P. 56; called for chamber and bowels acted; as this depressed him, I gave $\frac{1}{2}$ oz. of whisky and milk; heart's action jerky and labored on inspiration. 2:45 A. M., P. 60, sleeping and breathing regularly; quiet till 6 A. M., then became restless. 11 A. M., T. 98, P. 53; wound dry and crusted, like vaccination; tries to talk, but articulates badly; realizes it and frets; for "can't you understand?" says "can you no unerstan?" for "what time is it?" says "can wa time is it?" for "give" he says "grinn;" he asks, "when goin have binna?" for "when are you going to have dinner?" Became irritated and began swearing at a terrific rate at the flies. I find his sense of smell and taste perfect. When requested to repeat anything wrongly spoken, does it often correctly. 3:25 P. M., T. $98\frac{3}{4}^{\circ}$, P. 56, R. 18; calls comb "*kame*;" when told it was "comb" said, "yes, I meant comb;" named clock and scissors correctly; read large print, *Maryland Journal*, though with difficult pronunciation; takes interest in my actions in his room, and obeys my requests; inspirations deep and pause before each expir.

more regular; on percussing his head, said "*tain no use lapin, fine no pain or tender*;" calls flies "*shies*," and for mash says "*shash*;" hummed the tune "Days of Days Absence" correctly. 6 P.M., ate soft boiled egg; two hours after became very unruly, swearing and kicking if disturbed; urinated four times between 12:25 A.M. and 10 P.M.; urine milky when first passed, on standing became pale red; heavy light-colored deposit; specific gravity, 10.30; full of leucin and uric acid and amorphous urates; quantity normal; reaction very acid.

Oct. 7, 11 A.M.—T. $98\frac{1}{2}^{\circ}$, P. 58; mind clear; asked for tobacco, but spit it out, said it was nasty and too strong; has very little saliva; said "*set the bore*" for shut the door; looked out and said, "*jimany caoky, I din know it was snowin*;" seldom sounds the "r," says "*wope*" for rope; vision is correct; complains of left eye hurting; right eye open and clear; cedema all gone; right eye very sensitive; ptosis still continues. 7 P.M., very excitable and cross, grinds his teeth and cries; picked scab off of wound and tries to rub it; soft parts around it very much elevated and hard, depressed in centre; relapsed into a sleep; holds his breath, then takes long and deep inspirations, then expires slowly; took tapioca and cream, soft egg and oyster soup for dinner; some time afterwards became restless and threw himself about; swears correctly, but cannot say what he wishes in other things, which excites him; gave calomel and jalap every three hours. 9:30 P.M., sleeping. During the evening his father told him I did not like it because he swore so; said he was sorry, but could not help it and did not mean to do so.

Oct. 8.—Rested fairly well all night; wants to dress and sit up; says "*ats wata gona do too*;" T. 98, P. 60 and irregular; said "*pa at staves agehen too hot*" for "that stove is getting too hot;" he asked how he got shot; asking him how he knew he was shot, said someone said so; "*how lon I bin sit?*" we told him ten days, and he was surprised; *angle of right upper lip elevated and the left lower depressed, and lips everted and teeth show* when he tries to talk. Got up at 11 A.M. and sat in the chair; walks well, ptosis improved, slight convergence of left eye.

Oct. 9.—T. $98\frac{3}{4}^{\circ}$, P. 58; passed a good night, bowels acted, is very hungry, less irritability of temper; rubs his left eye, says it feels like hair was in it; closes it to look at anything, but says he does not see double; took egg custard, milk, bovine and potatoes to-day. 8 P.M., is very restless and frets, but says he has no pain, but I think eggs in any form disagree with him.

Oct. 10, A.M.—Had restless night till bowels acted; still grinds his teeth when sleeping; says something is wrong in his head; it is not a pain, but does not know what it is; attempts to sit in a chair, walked back to his bed in a few minutes, said it was too much; wound dry.

Oct. 11, A.M.—Rested well all night; tore scab off of wound, a little healthy pus weeping out; I can feel no bone; the probe irritates him, as the wound is very sensitive; played a game of cards to-day and beat his father in the game.

Oct. 12 and 13.—No special change in condition.

Oct. 14.—Won four out of seven games of "seven up;" will not obey my request to keep quiet.

Oct. 15.—Complains of headache; no rise of temperature; otherwise seems well.

Oct. 16.—Wound patulous, depressed in centre, discharging considerable greenish pus of a ropery, tenacious character; fungus granulations like necrosis, but no bone to be felt.

Oct. 17.—Sleeps well, eating well; wound still discharging, but less in quantity. I tested his power of writing, calling for the alphabet, but he would make a "b" for every letter; saw his error after his attention was called to it, but could not correct it. I saw him no more until Nov. 1, when he was out and apparently well, the wound discharging, a little hard elevated tissue around it, depression in the centre.

Dec. 1.—Was sent for and found him in violent excitement from drinking, no one could control him, would listen to no reasoning. I gave him morphia and bromide, and finally he went to sleep, and the next day we could discover no injurious effects from the spree.

From investigations made upon a skull about the same measure as this boy's I am led to believe that the ball passed through the right frontal sinus, entering the first frontal convolution posteriorly to the cristagalli, passing downward and backward above and over the olfactory and optic nerves at the optic foramen to the inferior frontal convolution, or Broca's speech centre, and from all indications lies internal to the anterior clinoid process at or near the fissure of Sylvius. "Cortical disease of those frontal gyri which lie anteriorly to the motor centres is often attended with no marked symptoms of a diagnostic character. The higher mental faculties may occasionally give signs of more or less impairment. Connected thought, the control of the emotions, accurate reasoning and concentration of the attention are particularly difficult under such circumstances."¹ To sustain this theory we have in this particular case listless condition, unusual profanity, the flow of tears, crying and mental depression.

That Broca's speech centre and the isle of Riel are involved is indicated by the aphasia, as he understood everything said to him, made efforts to reply, but could not regulate his speech movements, and was painfully conscious of his defects, as expressed by crying and becoming angry if we asked questions or requested him to repeat. We also have *paraphasia*, for when he could speak he uttered such sentences as "*can wa time is it?*"

¹ Ranney.

and "can you no unstan?" "kame" for comb. Then he could not write the alphabet, making "b" for every letter called for, and realized his error if attention was called to it.

Adjacent to Broca's convolution we have located that part of the brain that governs retraction and elevation of the opposite angle of the mouth and elevation of the *ala nasi* and upper lip, with depression of the lower lip on the opposite side.² The important points are, what portion of the objective symptoms depend upon the presence of the ball, and what from extravasated blood? The ptosis, strabismus, dysphagia and asphagia are of the past. That those symptoms were produced by extravasation and absorbed, looks reasonable.

If the ball had penetrated farther back, it would have entered the first superior temporal lobe, and "we would have loss of, or impairment of, the sense of taste or smell (if destructive in character), or subjective odors or tastes (if irritative in character);"³ but he tasted his medicine and recognized tinc. camph. If it had gone more to the right, it would have injured the optic nerve or internal carotid. *Where is the ball?*

His family moved away some fifty miles, and I went to see him May 5. They tell me they can see no change in him, only he is more irritable and quarrelsome. Is following the painter's trade and works at great heights, and says he feels steady while on the scaffold. I notice his mouth very slightly draws to the right when talking; his tongue also inclines a very little to the right; eyes act normally and sight perfect; he can read and write.

THE TREATMENT OF FLAT FOOT BY THOMAS' METHOD.

Read in the Section of Surgery and Anatomy at the Forty-first Annual Meeting of the American Medical Association, Nashville, Tenn., May, 1890.

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To the frequent occurrence and annoying symptoms of flat foot, we no doubt owe the large number of methods of treatment: we may choose between the braces of Whitman, Roberts, Woodbury, Sayre and others; the traction shoe of Shaffer and other mechanical appliances for forcibly twisting the distorted foot into position; the operation of Ogston and those who have modified his procedure; the supramalleolar osteotomy of Trendelenberg; tenotomies of different muscles; the treatment by means of pads of various materials placed under the arch of the foot; the use of suitable foot and toe exercises; the employment of artificial muscles to hold up the flattened foot; and

the method of Hugh Owen Thomas, of Liverpool

This list is probably not complete, but it is certainly varied enough to suit all men and all cases

It is not my purpose in this paper to criticise or compare these methods one with another, but simply to give the results of my experience with one line of treatment and to try and show in what class of cases it has been successful, and also in what cases, in our opinion, it fails, and, consequently, should not be used.

The report is based upon a study of over fifty cases of flat foot seen at the Out-Patient Department of the Hospital for the Relief of the Ruptured and Crippled, New York, during the past two years, which were treated by this method. The histories of twenty-five of these cases which have recently been examined are given in a table appended to this paper.

The plan of treatment of Mr. Thomas was derived from "clinical observation," and a picture of a flat foot sole is given in his work on "Diseases of Hip, Knee and Ankle Joints," published in 1886. The method consists in raising the inner side of the sole of the shoe a sufficient amount to cause the patient to walk in "varus" or on the outer side of the foot. The inner side of the foot is thus raised, the arch relieved somewhat of the downward pressure of the weight of the body, which is to a certain extent transferred to the ground through the cuboid rather than the scaphoid bone. This increase in height on the sole of the shoe extends from the extreme back portion of heel to just back of the great toe, and slopes gradually from the inner to the outer side.

In the manner in which the shoemaker does his work and on the fit of the shoe depend much of the success of the treatment. The shoe should fit properly and snugly, or the foot will simply turn inside it and not be "rolled over" to the outer side. The raised portion should not extend beyond the proximal end of great toe, as it is desirable that the toes should rest on the ground. The shank should be firmly supported, as it is here that the pressure comes, and it is often desirable in fixing "ready made" shoes where this part is particularly weak, to have it reinforced. These objects are best accomplished in a well fitting laced shoe of the Waukenphast type. Care must be taken that, if there are bunions or corns on the outer side of foot, they are not pressed upon in walking or standing, as is very apt to occur when the inner side of the foot is raised. As soon as the raised portion begins to wear off, it should be replaced, and, in our experience, we find that a "building up" of $\frac{1}{4}$ to $\frac{1}{2}$ inch is the proper amount. The patient should be taught to walk straight; that is, with toes pointed in front of him or nearly so, and not with feet widely separated and toes pointed outwards, for by that act alone, the deformity is increased and the trouble aggravated.

² These symptoms existed in this case as above stated.

³ Ranney.

Before stating in what class of cases Thomas' method best succeeds, and in what class it fails, I think it well to briefly give the symptoms of flat foot, and will take the liberty of quoting from a recent article of Dr. Whitman, read at the New York Academy of Medicine, Section of Orthopædic Surgery, in March, 1890. He says the diagnosis of flat foot is made from the following symptoms:

"1. Pain in the feet, aggravated by standing or walking, especially on going up or down stairs. The pain is usually about the arch, sometimes running up the leg, or it may be below the external malleolus at the ball of the foot or heel. 2. Stiffness and weakness of the feet, these symptoms combined with an inelastic gait, with toes turned out, some congestion about medio-tarsal joint, a moderate prominence below and in front of the internal malleolus, with pain at this point on suddenly moving or twisting the fore foot, also a considerable flattening of the arch when weight is borne. In well marked cases the deformity is so apparent that any one who has ever heard of flat foot should be able to make the diagnosis at a glance. Here the os calcis is tipped over to the inside, the astragalus has rotated and slipped downwards and inwards, forming the well marked projection at the inside of the foot, the arch has disappeared and the fore foot is so displaced outwards as to become a useless appendage. In such cases we find to a varying degree the spasm of muscles, congestion and inflammation of the soft parts often so marked as to be mistaken for "carries of the tarsus."

From this short but complete account, we see that there may be many degrees of severity of flat foot, and for convenience we may divide them into three classes. In the first class, the mildest cases, the symptoms are a slight sinking of the normal arch, occasional pain, fatigue in walking or standing. These cases rarely consult the surgeon unless the pain becomes too annoying, and by use of medicines, slight rest and liniments they fail to get relief.

In the second class of cases the deformity is well marked, the pain more or less severe and constant, and slight spasm is present. The spasm may be easily overcome and may not be present at all times. This combination of symptoms represents the class of cases most often seen.

The third class comprises all the more severe cases, the acute or inflammatory flat foot, what König and Lorenz describe as "contractured static flat foot;" also the cases secondary to traumatism, especially Pott's fracture. In these patients the spasm is a marked symptom, the pain is severe, displacements of astragalus, scaphoid and os calcis exist, and change in the muscles, ligaments and tendons.

In cases of a mild type the treatment gave relief, and it was prompt and permanent while the

treatment was continued. In some, after treatment had been stopped a certain length of time, a relapse occurred; this, as in the former instance, was promptly relieved by the same treatment. In the more severe cases, but not in the severest, in most instances the treatment was also successful; in cases with slight spasm, that symptom soon disappeared and the foot became supple and at the same time less painful, the flattened arch became more natural, and the symptoms were more or less completely relieved. In the worst cases the treatment failed, and I think the reason is, that to tilt the foot to the outer side presupposes some mobility in tarsal joints as well as in ankle, and where they are held in marked spasm such can not occur. Again, if the foot is very tender and painful it will not stand any pressure long continued, and such cases can only be successfully treated by complete rest, preferably in a plaster of Paris splint or some immovable dressing, after the foot has been forcibly twisted into shape by manual force, or by a Thomas twister or other device, patient being under the influence of an anæsthetic. Here the dislocations must be reduced, adhesions broken up, and foot forcibly placed and held in a correct position. In treating all cases, constitutional symptoms should not be disregarded; gouty and rheumatic cases must receive suitable medicine, the weak need tonics, those using the feet too much need rest, ill-fitting shoes must be cast aside, ingrowing toe-nails, corns and bunions receive proper care, feet be properly looked after, and such exercises be carried out as raising the body on the toes a number of times each day, practicing adduction and abduction of the forepart of the foot, and such other movements as will strengthen and develop weakened muscles and ligaments, aided also by massage and douches of hot or cold water.

In cases of severe spasm and deformity, after these have been overcome, much good may be done and relapses prevented by then raising the inner side of shoe, thus supporting the foot. The advantages of this form of treatment are:

1. Simplicity.
2. Success in proper cases.
3. Cheapness.

Any intelligent cobbler can at short notice and slight expense "build up" a pair of shoes, whilst to make a proper brace means taking a good plaster cast in the correct position of foot, and more or less skill on the part of the instrument maker in properly fitting and constructing the brace, and its intelligent application by the surgeon and patient.

Thomas' method is well worthy of trial, and especially by those who have not the facilities for making the various braces. If it fails to give the desired relief, the surgeon then has the choice of any of the other methods previously alluded to; and certainly, in the treatment of all diseased

conditions, the simplest methods should first be tried, unless good and sufficient reasons exist for not using them.

In the following table the results of treatment are given as "improved" and "not improved." These terms are used rather than the term "cured," as in no case with a marked deformity at the start have we seen it completely disappear. The pain and spasm may have vanished and the patient be perfectly comfortable and to all intents and purposes cured completely, yet, on comparing the two feet, if one only was originally affected, it was invariably found to be flatter than the other, though in many instances not as flat as when treatment was begun. If both feet were affected, they were found to be flatter than the normal feet should be.

No.	Sex.	Foot Affected.	Age.	Class.	Duration before Treatment	Duration of Treatment	Time since Treatment	Result.
1	F.	Both.	17	2	3 mos.	2 mos.	1 year. [ment.	Imp.
2	M.	"	19	2	4 yrs.	6 mos.	Still under treat.	Imp.
3	F.	"	15	2	8 mos.	2 mos.	18 months.	Not imp.
4	F.	"	14	1	1 yr.	8 mos.	1 year.	Imp.
5	M.	"	26	1	3 mos.	8 mos.	1 year. [ment.	Imp.
6	M.	"	18	1	1 yr.	6 mos.	Still under treat.	Imp.
7	M.	"	23	2	1 yr.	1 yr.	"	Imp.
8	M.	"	23	2	4 wks.	1 yr.	1 year.	Imp.
9	M.	"	21	2	1 yr.	1 yr.	1 year. [ment.	Imp.
10	F.	"	13	2	6 mos.	1 yr.	Still under treat.	Imp.
11	F.	"	44	3	1 yr.	2 mos.	4 months.	Not imp.
12	F.	"	17	2	3 yrs.	4 mos.	6 months. [ment.	Imp.
13	M.	"	16	2	1 yr.	1 yr.	Still under treat.	Imp.
14	M.	L.	34	3	1 yr.	2 wks.	1 year.	Not imp.
15	F.	Both.	40	3	3 yrs.	4 mos.	1 year.	Not imp.
16	M.	"	16	2	2 yrs.	6 mos.	6 months.	Not imp.
17	M.	"	19	3	3 yrs.	6 mos.	6 months. [ment.	Imp.
18	M.	"	45	2	1 yr.	1 yr.	Still under treat.	Imp.
19	M.	"	8	1	1 yr.	1 yr.	"	Imp.
20	F.	"	7	3	2 yrs.	2 mos.	1 year. [ment.	Not imp.
21	M.	"	11	1	2 yrs.	1 yr.	Still under treat.	Imp.
22	M.	"	35	2	2 yrs.	1 yr.	"	Imp.
23	M.	R.	48	2	1 yr.	3 mos.	6 months. [ment.	Imp.
24	M.	L.	33	2	2 yrs.	1 yr.	Still under treat.	Imp.
25	F.	Both.	19	2	2 yrs.	2 yrs.	1 month.	Not imp.

THE INFLUENCE OF LOW TEMPERATURE ON THE SYMBIOSIS OF MICRO-ORGANISMS WITH REFERENCE TO PNEUMONIA.

Read in the Section of State Medicine at the Forty-first Annual Meeting of the American Medical Association, held in Nashville, Tenn., May 21, 1890.

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It is a well established fact in bacteriology that a certain temperature range is requisite for the propagation of microorganisms, some of which may have a wide range of temperature, while others require a more limited degree, which can not be departed from without jeopardizing the life of the microorganism. The same may be said in a general way concerning their resistance to high temperature; some are killed at 50° C., while others live for a considerable time at a temperature over 100° C.

The bacteria, which are widely distributed, sel-

dom exist alone, being usually associated with others, which constitutes the state of symbiosis. In this condition the bacteria exist and exert peculiar influence upon each other as to their manner of growth and individual virulency. A good example can be given showing the dependence upon each other of the different varieties of bacteria found in common garden earth, where the several kinds of aerobic and anaerobic germs exist, live and propagate in free oxygen, but if separated from each other the anaerobes cannot be grown except in an atmosphere devoid of oxygen.

In reference to the pneumococcus, the organism which we consider the specific agent in the production of lobar pneumonia, certain peculiarities have been observed in its life history which are deemed worthy to record.

The majority of those who have written concerning this microorganism appear to have given as its habitat the buccal cavity, where it will exist indefinitely. The medium of contagion is unquestionably the salivary secretion and the sputum from those suffering with pneumonia. The statement in reference to its presence in the saliva of persons, as given by some, fixes the percentage entirely too high, and it needs to be criticised.

All observations, so far, have been made upon cases not pneumonic in hospital wards where cases of pneumonia either had been or were at the time under treatment. We will assert that under these conditions a much larger percentage of persons will be found to have the pneumococcus present in their saliva, than of those in the ordinary walks of life. It is, we think, safe to say that we have every reason to believe that cases of pneumonia have been contracted in hospital wards from other cases; this fact alone can be sustained by the observations of many clinicians.

The *materies morbi* of pneumonia requires as much, if not more care in its disinfection than does tuberculosis, for the majority of cases have violent delirium at some time during the attack, thereby rendering it extremely difficult to completely disinfect their sputa.

Thus, it will readily be seen that if such conditions exist in a room, or hospital ward, the pneumococcus can be diffused and find a nidus within the buccal cavity of a large number.

The investigations which we have made in this direction have shown the pneumococcus to exist in much greater numbers among hospital patients than in others, for the solution of which the above possibility is offered. The life history of the pneumococcus is quite well established. Studied experimentally, it grows best in the ordinary nutrient media, viz.: agar gelatin and bouillon between 35° and 38° C., with the peculiarity of ceasing to grow in about four days, and dying if not transplanted to fresh nutrient media

within that time. The inhibitory and germicidal agent is the ptomaine produced by the organism, rendering the media sterile. In the culture of the pneumococcus we simulate the conditions that are present in the buccal cavity. There the ptomaine, as fast as formed, is removed, either by absorption or by solution in the saliva, there being always the requisite amount of heat, moisture and nutrition present. At ordinary temperature it lives about three weeks; during the first week it grows to a slight extent, then remains stationary until it ceases to exist.

Granting that the medium of contagion is the saliva, we find that within this fluid quite a number of other bacteria are constantly present, usually non-pathogenic, which undoubtedly exert some influence upon the growth and virulency of the pneumococcus.

Experimentally it can be demonstrated that the microorganisms found in the mouth in conjunction with the pneumococcus *do* exert quite a controlling influence upon its development; for, if they are planted together in nutrient media, these being kept at blood temperature and transplanted every day upon fresh soil, within a few days the pneumococcus will have disappeared; occasionally some one or two of the other varieties will have disappeared also, or will have been materially diminished. This was found to be the general rule, but exceptions can be cited. Sometimes the pneumococcus preponderates over the other forms, and gains the supremacy. When the microorganism associated with others is kept at ordinary temperature, there is the same general result, although a longer time is required to bring it about. When the pneumococcus is grown with several bacteria non-pathogenic, and susceptible animals inoculated with this culture, it was demonstrated that the animals did not succumb, as in the control cases, although the same quantity of each had been taken for the inoculations. These animals, chiefly rabbits, which were inoculated with the mixed culture, were, after recovery, inoculated with a pure culture and found susceptible to the disease. This explains the reason why it has been noted that when an animal susceptible to the disease is inoculated with a portion of a pneumonic lung, it often shows no effect, although the microorganism can be isolated from the lung. The bacteria present in the lung post mortem exerts an inhibitory effect upon the pneumococcus, rendering it innocuous.

We now come to the question of low temperature upon the microorganism, and in this connection some of the experiments conducted on this point will be given.

Bouillon cultures of the pneumococcus were made and then inoculated with the following microorganisms: *Bacillus Coli Commune*, *Bacillus Proteus Vulgaris*, *Bacillus Indicus*, saprophytic bacilli from the mouth, *Spirillum* of Fink-

ler-Prior, *Spirillum Denkeri*, and orange sarcina. These were placed in a thermostat and kept at a temperature of 37° C. for fifteen hours; they were then frozen solid and examined from day to day. At the end of five days there was quite a diminution in the number of bacilli and spirilla, save that of *Coli Commune*; there was no diminution of the pneumococcus. At the expiration of ten days the *Proteus Vulgaris* had entirely disappeared, leaving an active culture of the pneumococcus. The bacilli had diminished considerably in numbers, but none others had disappeared entirely. The number of spirilla in each culture had notably diminished. The sarcina had also disappeared. This series was carried on for forty days, during thirty of which the cultures were active; after that they began to decline, and in the succeeding ten days the pneumococci disappeared. Portions of lung tissue, six hours post mortem, were removed with the ordinary precaution and placed in large sterilized test tubes; some of these were sealed, others left open. One set was kept at a temperature of 37° C., another at ordinary degree, and still another was frozen. The lung contained bacilli, two varieties, a large micrococcus, and the diplococcus *pneumoniæ*. In those subjected to 37°, both sealed and open, the pneumococcus had disappeared at the end of seven days; the second, kept at ordinary temperature, were found to have lost their pneumococcus at the end of the sixteenth day; those which were frozen presented the same general outline in their behavior as in the experiments conducted in the symbiosis of microorganisms. There was a gradual diminution in the number of bacilli until the sixteenth day, when the number remained about stationary. Meanwhile the pneumococci appeared about the same until the thirtieth day, when there was a diminution of all the varieties of bacteria, and the pneumococcus could not be grown.

Sputa of patients suffering from pneumonia was treated in the same manner, exposing it to temperatures of 37°, ordinary, and freezing. Its behavior was found to be in all respects similar to the lung, only the virulence of the *pneumoniæ* was of slightly longer duration.

The occurrence of epidemics of pneumonia during the winter and spring months appears explainable in part by the foregoing experiments. The questions of individual susceptibility, predisposing influences of climate, and bad hygiene, are not to be overlooked in pneumonia any more than in tuberculosis; but it appears that, aside from these, there must be another factor to account for the epidemic form of the disease.

Variations of climate, associated with overcrowded living-rooms, when the microorganism is present in the sputum of an individual, certainly affords far greater chance of infection than if these conditions did not exist.

In the latitude where epidemics occur, during winter and spring months, there is a wide variation both in temperature and humidity, which is sufficient to lessen, if not destroy, other bacteria which exert an inhibition of the growth and modification of its virulence, so that the infective properties are increased. Pneumonia is distinctly a house disease. During the winter months the aggregation of people in homes, schools and factories is greatly increased. Aside from the necessary amount of artificial heat for personal comfort, the air is contaminated by respiratory excreta, the individual resistance lowered, and if the pneumococcus be present there is a fruitful field for the infective agent.

The conclusions we would draw from our observations are: That lobar pneumonia depends upon a special microorganism for its production; that its infective properties depend upon certain conditions and environments; its prevalence during winter months is due to the fact that the bacteria of pneumonia have greater resistance to cold than many other forms; that conditions are more favorable for the spread of infection by reason of the predisposing influences of climate and bad hygiene.

Hygienic Laboratory, U. S. Marine-Hospital, New York, May 16, 1890.

THE NECESSARY PEROXIDE OF HYDROGEN.

Read in the Section of Surgery and Anatomy, at the Forty-first Annual Meeting of the American Medical Association, held at Nashville, Tenn., May, 1890.

BY ROBERT T. MORRIS, M.D.,
OF NEW YORK.

Stop suppuration! That is the duty that is imposed upon us when we fail to prevent suppuration.

As the ferret hunts the rat, so does peroxide of hydrogen follow pus to its narrowest hiding place, and the pyogenic and other microorganisms are as dead as the rat that the ferret catches, when the peroxide is through with them. Peroxide of hydrogen H_2O_2 in the strong 15-volume solution is almost as harmless as water, and yet, according to the testimony of Gifford, it kills anthrax spores in a few minutes.

For preventing suppuration we have bichloride of mercury, hydronaphthol, carbolic acid, and many other antiseptics, but for stopping it abruptly and for sterilizing a suppurating wound we have only one antiseptic that is generally efficient so far as I know, and that is the strong peroxide of hydrogen. Therefore I have qualified it, not as "good," not as "useful," but as "necessary."

In abscess of the brain, where we could not thoroughly wash the pus out of tortuous canals without injuring the tissues, the H_2O_2 , injected at

a superficial point, will follow the pus, and throw it out, too, in a foaming mixture. It is best to inject a small quantity, wait until foaming ceases, and repeat injections until the last one fails to bubble. Then we know that the pus cavity is chemically clean, as far as live microbes are concerned.

In appendicitis, we can open the abscess, inject peroxide of hydrogen, and so thoroughly sterilize the pus cavity that we need not fear infection of the general peritoneal cavity if we wish to separate intestinal adhesions and remove the appendix vermiformis. Many a patient, who is now dead, could have been saved if peroxide of hydrogen had been thus used when he had appendicitis.

The single means at our disposal allows us to open the most extensive psoas abscess without dread of septic infection following.

In some cases of purulent conjunctivitis we can build a little wall of wax about the eye, destroy all pus with peroxide of hydrogen and cut the suppuration short. Give the patient ether if the H_2O_2 causes too much smarting. It is only in the eye, in the nose and in the urethra that peroxide of hydrogen will need to be preceded by cocaine (or ether) for the purpose of quieting the smarting, for it is elsewhere almost as bland as water.

It is possible to open a large abscess of the breast, wash it out with H_2O_2 , and have recovery ensue under one antiseptic dressing, without the formation of another drop of pus.

Where cellular tissues are breaking down, and in old sinuses, we are obliged to make repeated applications of the H_2O_2 for many days, and in such cases I usually follow it with balsam of Peru, for balsam of Peru, either in fluid form or used with sterilized oakum, is a most prompt encourager of granulation.

If we apply H_2O_2 on a probang to diphtheritic membranes at intervals of a few moments, they swell up like whipped cream and come away easily, leaving a clean surface. The fluid can be snuffed up into the nose and will render a fetid ozæna odorless.

It is unnecessary for me to speak of further indications for its use, because wherever there is pus we should use peroxide of hydrogen. We are all familiar with the old law, "*Ubi pus, ibi evacua*," and I would change it to read, "*Ubi pus, ibi evacua, ibi hydrogenum peroxidum infunde*." That is the rule. The exceptions which prove the rule are easily appreciated when we have them to deal with.

Peroxide of hydrogen is an unstable compound, and becomes weaker as oxygen is given off, but Marchand's 15-volume solution will retain active germicidal powers for many months, if kept tightly corked in a cold place. The price of this manufacturer's preparation is about 75 cents per lb., and it can be obtained from any large drug house

in this country. When using the H_2O_2 it should not be allowed to come into contact with metals if we wish to preserve its strength, as oxygen is then given off too rapidly.

H_2O_2 must be used with caution about the hair if the color of the hair is a matter of importance to the patient, for this drug, under an alias, is the golden hair bleach of the *nymph's dispare*, and a dark-haired man with a canary-colored moustache is a stirring object.

MEDICAL PROGRESS.

SUCCESSFUL REMOVAL OF A TUMOR IN THE BRAIN.—At a recent meeting of the Berlin Medical Society, Dr. H. Oppenheim described an operation of this kind. The patient was a woman *æt.* 36. She had enjoyed excellent health till last September, when she began to suffer from clonic spasms in the temporal region and in the left arm, and frequently fell into convulsions. On recovering consciousness she complained of pain in the right temporal region. The symptoms recurred, and a diminution of the sensibility of the left arm and side set in. The diagnosis pointed to a growth in the brain. As internal treatment only made the patient's condition worse, and the left foot also became rigid, the skull was opened on April 26, under antiseptic precautions, and the surgeons removed a tumor about the size of a crown piece. The patient has felt decidedly better since the operation. She can move the left arm and foot without difficulty, and can walk about.—*Lancet*.

THE FIRST ABDOMINAL NEPHRECTOMY IN CUBA.—The *Revista de Ciencias Médicas* publishes an account of the first operation for the extirpation of a kidney which has been performed in Cuba. The operator was DR. E. MENOCAL, of Havana, and the patient a young married lady who had had one child. She suffered from a tumor the size of the foetal head, occupying the right hypochondriac and lumbar regions. In the lower part of it fluctuation could be made out. There was pus in the urine, and all the physical signs pointed to the existence of a diseased kidney. This it was decided to remove by means of an incision along the outer border of the external rectus, cutting through the peritoneum twice. There were adhesions between the diseased kidney and the peritoneum, and in separating them an abscess was opened which gave vent to a quantity of very fetid pus. The opening, however, was closed by means of bulldog forceps, and no further difficulty was met with. The pedicle and the ureter were ligatured with silk soaked in perchloride of mercury. The cavity was washed out with hot sterilized water. A

silk suture in the form of a crown was applied between the edges of the posterior and anterior layers of the peritoneum, and two large drainage-tubes inserted, going to the bottom of the cavity, which was completely separated from the rest of the abdominal peritoneum. The external wound was sutured both deeply and superficially by metallic sutures, and an iodoform dressing put on. The bladder was washed out with a boracic acid solution. The whole operation occupied only twenty minutes. No serious complications occurred, and the wound was completely healed and the patient well in forty-six days. On examination, the tumor, which weighed about seven ounces, was found to contain eight abscesses, the cause of which was the blocking up of the ureter by an oxalate of lime calculus situated in the pelvis, and weighing twenty-four grains.

ARISTOL IN GYNECOLOGY.—DR. G. (*Gazette de Gynécologie*) confirms the results obtained by Swiecicki, Veiner, Rohier, and others, with the use of this drug in endometritis and ulceration of the cervix. Swiecicki employed the drug in a 10 per cent. solution in oil, into which tampons were dipped and placed in the vaginal vault; he also used suppositories of the drug introduced into the uterine cavity. With this method rapid results were achieved in ulcerations, endometritis and eczema of the vulva. Aristol is absolutely free from all irritating properties, neutral in reaction, free from odor, and seems to have much the same action upon ulcerations, and inflamed mucous surfaces as iodoform, only to a greater degree. In practical gynecology it may be employed in powder, carried to the part upon small tampons of cotton. In one case of epithelioma of the cervix it was employed with prompt relief of the hæmorrhage, disappearance of fetor and the part presented a clean granular surface. In endometritis, suppositories may be used containing 1 grain of the drug.

"One single point is to be especially observed if the best results are to be obtained in the use of this new product; it should never be conformed with iodo-thymol, and biniodide of thymol, the former of which it closely resembles. The last substance contains alkaline iodides that are irritating to wounds and mucous membranes."

SPECIFIC TREATMENT OF LOCOMOTOR ATAXIA.—The almost uniform failure of specific treatment in tabes, is a sufficient excuse for quoting a single authenticated successful result. GAUCHER (*La Semaine Médicale*) reported to the Société de Dermatologie et Syphiligraphie, the case of a man *æt.* 27, who was infected with syphilis in 1876. Eruptions appeared upon the hands in 1880, and two years later, he had lancinating pains in the arms and legs, difficult locomotion, and diplopia. He was treated with sulphur

baths, douches and bromides, but without benefit. In 1883 he was markedly ataxic, presented plantar anæsthesia, loss of patella reflex, and walked with great difficulty. Inunctions of mercury were ordered with gram doses of potassium iodide thrice daily. The same week vision improved, locomotion was easier, and at the end of six weeks the patient was seemingly perfectly well. Since July, 1883, the patient has attended to his business, and there has been no signs of ataxia. Small doses of iodide of potassium have been given from time to time.

EFFECTS OF ALCOHOL UPON THE NERVOUS SYSTEM.—In the laboratory of PROF. MIERZEJEWSKI (*St. Petersburger Med. Wochenschr.*), dogs were fed upon 40 per cent. alcohol, the fluid being conveyed directly to the stomach through a tube, in the proportion of 1 ccm. for each kilogram of body weight—this dose was later increased to 6 to 8 ccm. The dosage was kept up until the death of the dog, which ordinarily took place in from five to six months, though one lived eight months. One dog, who had been poisoned with alcohol for some months, was killed in thirty-two hours by large doses; others were immediately killed by large doses—acute alcoholic poisoning. In the chronic poisoning was found general hyperæsthesia, paralysis of the legs and general muscular weakness. Post-mortem examination revealed congestion of the meninges of the cord and brain in the cases of acute poisoning. In the chronic cases, the grey matter of the cord and brain were distinctly hyperæmic. The nerve cells in the grey matter of the cord were degenerated, vacuolated, the protoplasm broken up into stringy masses. The granular matter had disappeared. The axis cylinder processes, as well as the nuclei, were obscured by the changes in the protoplasm. Leucocytes were sparingly found. The inflammatory process was most pronounced in the anterior horns. Medulla, pons and hemispheres presented similar changes in the grey substance, but not in so great a degree. The dog which was at first chronically poisoned for some months, and then killed by large doses in a few hours, presented the same changes as those chronically poisoned. The hyperæmia of the grey substance was more marked in the cases of acute poisoning, and showed a tendency to involve the white substance. In all cases, the process was an ascending one, and the lumbar and cervical portions of the cord were always the most affected.

AN OPERATION FOR ENTEROLITH.—S. CHALAFOW reported the removal of an enterolith before the Medizinskoje Obosrenije (*St. Petersburger Med. Wochenschr.*). The patient, a peasant woman 50 years of age, had suffered for the past twenty years from constipation, tympanites, vomiting, and pain, especially in the right hypogastrium.

The attacks occurred at intervals of from three to six days. Fæcal vomiting was never observed. Upon examination, two tumors were found to the right of the umbilicus, separated by about 1 inch. They were hard, round, smooth and freely movable. Pain was felt at this point, both upon pressure and spontaneously. It could be determined that the tumors were not connected with the genital organs, but their exact nature could not be determined. A laparotomy was made, and the fæcal stones removed through an incision into the ascending colon. Silk sutures were used in closing the wound in the gut and abdominal wall. Sutures were removed at the end of eight days, and in three weeks the patient was discharged cured.

AN AMOEBA FOUND IN DYSENTERY AND ABSCESS OF THE LIVER.—DR. WILLIAM OSLER (*Centralblatt für Bakteriologie und Parasitologie*) says that Lösch, Koch and Kartulis have found an amoeba-like organism in dysentery. Kartulis has made the further observation that in liver abscess accompanying dysentery amœbæ are found. So far as he knows these bodies have only been found in Russia and Egypt, so that the following observation has additional interest from the fact that they are also found in the New World.

The patient had lived in Panama for five years, where he had suffered from chronic dysentery. In May, 1889, he came North and subsequently went to Vienna, where he was treated for recurrent attacks of dysentery. In December he returned to Baltimore, where he was seen by Dr. Osler. For six weeks the patient suffered from slight chills, and sweats. On March 22, two abscesses in the right lobe of the liver were opened. The contained pus was white, of the consistence of cream, and in part stained with bile. Upon examination active amoeba-like forms were found, having about twelve times the volume of a white blood corpuscle. They changed their form as rapidly as the liveliest swamp amoeba. Their structure presented a homogeneous outer protoplasm, within this a granular substance in which small cells of different sizes were found, and an occasional nucleus. These amœbæ were also found in active movement in the fæces. The author thinks that the structure, movements, and general appearance of this organism leaves no doubt but that it belongs to the parasitic forms of the amoeba.

TINCT. IODINE IN BRONCHOCELE.—DR. DAVIES (*Br. Med. Jour.*) says tinct. iodine in 5 minim doses, with hydrochloric acid and glycerine, answers well in simple glandular cases of bronchocele. This amount may require to be increased. When there is fibrous growth present, the injection of tinct. iodine is necessary, and Dr. Davies has never seen any serious results, if we exclude cases of cystic goitre.

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SATURDAY, AUGUST 9, 1890.

THE ENLARGEMENT OF THE ASSOCIATION.

It is essential to the well-being of this organization, if any measures shall be adopted with a view to the increase of its membership and the enlargement of its usefulness, that such measures shall not only be practicable in their operation, but manifestly beneficial in their results. Every suggestion which shall be made and every plan which shall be proposed, needs to be wisely and deliberately considered before decisive action is had. It is safe to presume that such deliberation will be assured since the views of several thousand of our members must be harmonized before any essential changes can be made.

We doubt if there be a single member of the Association who is actuated by a revolutionary spirit, or who would willingly dispense with any of our methods of procedure, so far as they are valuable, unless in their places better ones can be substituted.

There is a general conviction, and it has a strong hold upon our members, that in the past, as we were then conditioned, the present plan of organization was the best that could have been adopted. Under its guidance the Association has moved steadily on for more than forty years; but during these forty years surprising changes have come to us in all our surroundings. They are as apparent in matters pertaining to medical men and medical organizations as elsewhere. In view of these new conditions many of our most prominent and reliable members are led seriously to inquire whether the time is not at hand when

some essential modification should be made in our plans of organization, which shall render the Association more surely the representative National Organization in this country. There are now within the American Commonwealth at least seventy thousand active medical practitioners, and the number of these which shall be in close affiliation must be largely increased if we are to maintain in fact, as in name, our prominence as the National Medical Association.

As to the methods by which a result so desirable can be attained, we do not propose by the urgency of our own convictions to forestall the wisdom of those who may be appointed in due time to formulate a report upon this important subject.

To those who are seriously considering what modification of our present plan can wisely be made, we commend a careful study of the constitution and by-laws of the Medical Society of the State of New York. The plan there adopted has been fully tested and meets with general approval, and with suitable modification, perhaps it could be adopted by the American Medical Association. The various State Medical Societies could be related to our central Association in some manner, as the Divisions are related to the State Society in New York.

Our local societies could be represented by delegates in the State Societies, and these in like manner in the National Association. The State Societies could labor efficiently for the perfection of local organization, and by a full representation of delegates greatly strengthen themselves and a union of such State Societies under one National Organization, would render it National indeed. If the American Medical Association can thus represent the aggregate of State and local societies, it will augment its membership by thousands, and can to a degree untold, increase its usefulness.

LEPROSY IN NEW BRUNSWICK.

There has been a lazaretto in northern New Brunswick since 1844. In July of that year it was opened on Sheldrake Island, in the mouth of the Miramichi river, having an area of thirty acres. The location was healthful and favorable to isolation, but the management of the lepers proved disagreeable to some of them, and they

would from time to time make their escape to the mainland by means of rafts and otherwise. The treatment was too much like that of prisoners, the building being surrounded by a high picket fence and the patients were locked in every night. Those who deserted were pursued, and when caught, were brought back by force. Some remained unfound in the woods on the mainland. In 1845, the lazaretto burned down, and it was suspected that the lepers set it on fire. In 1849, the unpopular island location was abandoned and a new lazaretto was built at Tracadie, about twenty miles further to the northward along the same coast. In 1851, the number of inmates was 37; the policy of the lofty fence was still in force and guards were employed to insure isolation. About 1849, DR. CHARLES LA BELLOIS was put in charge of the lepers, in order to enable him to test a proposed plan of treatment; he proclaimed quite confidently the theory that leprosy is identical with syphilis, and therefore a curable disease. This episode resulted, of course, in failure.¹ In 1852, there was another fire, followed by a rebuilding the next year. Since the year 1868, the members of a sisterhood of nuns from the Hôtel Dieu of Montreal, have most unselfishly devoted themselves to the duty of nursing the sick lepers; a house adjoining the hospital has been built for them. The same medical officer, DR. A. C. SMITH, has been in charge since 1865. In 1880, the Dominion general government assumed control of the lepers, and an annual appropriation of \$3,200 has been allowed, increased slightly during the present year. The lazaretto is of wood, having two stories, rather small and low. The females occupy the upper part, and the males the lower. The high fence has been abolished and the lepers are much less averse to entering the hospital than formerly. The inmates are free to move about in the eleven acres of grounds, belonging to the institution, in which some of them do gardening, while others fish in the river, and the patients are generally content with this retreat. They deem themselves much better cared for than their predecessors of the Sheldrake island institution. They have great confidence in their priest, FATHER BABINEAU, who takes an active, personal interest in their welfare. In 1844, the number of known

cases was twenty. Prior to 1844, the number of cases known to have occurred and to have been fatal was twenty. No case is known to have existed earlier than 1815, when a French woman, URSULE LANDRÉ, became leprosy. She was descended from grandparents who had immigrated from St. Malo, in Normandy, where leprosy is said to have long existed, but no leprosy history could be attached to any of her progenitors, on either side. Ursule died in 1828; her husband and two sisters subsequently became lepers. The disease spread slowly, affecting the poorer members of a community that lived in a circumscribed district, and one almost inaccessible in those early days. The diseased unfortunates had little, if any, care or treatment, and were, for the most part, shunned by their neighbors. In some instances, the lepers were confined in a log-house or enclosure, constructed for the purpose, with an opening through the logs for food to be passed in to the dreaded person, or persons, until he, or they, became too weak to receive it, when, of course the end was not far off. Those who have suffered from the disease have been largely of French extraction, and at the present time all the cases are of that race. In times past, there have been occasional instances of the disease among Scotch, English and Irish people, but none among the Indians, so far as is known. That the disease is not increasing, but rather is diminishing, may be fairly concluded from the fact that during the past fifteen years the admissions to the Tracadie hospital have numbered only fifty-three cases, while in the fifteen years immediately preceding there were seventy-one admissions. From 1844 to 1888 there were admitted into the lazaretto 194 cases. Nearly all the victims to the disease ultimately betake themselves to the institution and die there; but some few have certainly died outside. Taking all these into an estimate of the entire number of cases from 1815 to date, it may be judged that there have been about 230 lepers in the seventy years and over, and that the number of cases has declined although the population has, meanwhile, surely multiplied threefold.

THE FRENCH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE will meet in Limoges, August 7. During the session a statue of Gay-Lussac will be unveiled.

¹ From paper by Dr. Murray McLaren, in the Maritime Medical News, May and July, 1890.

FRESH AIR FUNDS FOR CITY CHILDREN.

One of the most striking features of the charitable work of the present day is in the care taken of the young, especially of our young city-dwellers. The little people who are so fortunate as to be brought up in the country have about the same care now that they have always had; that is, they look out for themselves, and they are generally able to do it. But our city infantry need a great deal of charitable oversight. The movement is well-nigh universal, in all great cities, to help poor children, subjected to city overcrowding, to get away into the country. In Berlin, an organization, known as the Vacation-Colonies Societies, is favored by Imperial ladies, and has achieved an astonishing success in a very short time. In Paris, there have been for several years small societies for taking the young out of the city in the summer time. London has had, for seven or more years, its Country Holiday Fund, which is a union of a number of formerly independent efforts for the relief of certain special areas. The number of children who obtained an outing, last year, from London, was twenty thousand, under the direction of thirty-six district committees, and distributing the children to not less than 450 country centres. The Fund expended \$65,000 for that year. The majority of the children are placed in the country during the school vacation, which begins near the close of July and lasts only three weeks. The children go to cottages, for the most part, in small groups; and the same pilgrimage is made by the same children year after year in not a few instances. A cottage is seldom taken from the list. The advantages of this comprehensive system are many, not the least of which is the saving of time and money, and reducing the opportunities for imposition. Under the old private enterprises, designing persons took occasion to make use of two or more of the funds, and last winter, when for the first time an effort at organization was made in Boston, there were found to be over forty fresh-air charities, some of which were designed to cover the same relief-territory, and were liable to have their efforts misapplied. In New York City; as well as in some other seaboard cities, the enterprises are chiefly private charities, without any common aim or coördinated action, whose missions do not extend much beyond giving an outing at the seashore to the sickly children and

their mothers, generally for a few days or a week at most. In addition to these are the single-day excursions by boat to some not very distant point, for the object of removing the children, whether sick or well, for a breath of fresh sea-air. These are all useful in their way, and help to keep down the midsummer death-rate.

EDITORIAL NOTES.

DEATH OF DR. WILLIAM BRODIE.—Dr. William Brodie, of Detroit, died at his residence in that city on July 30. Few men in the medical profession were more widely known than was Dr. Brodie. For more than a third of a century he had been an active member of the American Medical Association, and his loyalty to its interests was proverbial. Its highest honor was conferred when he was elected President. In the discharge of the duties in connection with that office, his services commanded universal approval. It is difficult for the moment, as the news of his death comes to us over the wires, to realize that in the future meetings of the Association, his place will be evermore vacant. His relations with the Association have been so inseparable, that the record of his life becomes a part of its history, and as time permits, other pens will do ample justice to his memory.

THE CONGRESS AT BERLIN.—As we go to press, this venerable body is in session. The distinguished representatives of medicine and surgery are there from every land. It is one of the marvels of the age that such a meeting is thus feasible. The ocean voyage is no longer a barrier, and the cable gives constant reports of its proceedings. A unison of purpose prevails in all that vast assemblage. Its deliberations concern and compass the globe. Medical men from every nation are met in common, and at their own expense, to consider the best means of promoting the health and happiness of the human race. The one great hinderance to perfect success in such a gathering as this is the absence of a common language for the expression of the common thought. It becomes a matter of exceeding interest, as to the manner in which this difficulty shall finally be overcome. What form or speech shall finally avail? Shall the Latin be revived? Shall one of the living languages prevail? Or shall a new language be created? Which?

DR. PAUL LOYE, æt. 29, died in Paris on July 5, of infectious pericarditis. During his too brief career he was attached to the laboratory of Paul Bert, and later to that of legal medicine under Brouardel. He was principally known from his studies upon decapitation—particularly his thesis for the doctorate, *La mort par la décapitation*, which attracted marked attention at the time of its publication.

PHILLIPPE RICORD MONUMENT. — *L'Union Médicale* publishes the first list of the subscriptions to the monument to Phillippe Ricord. The total amount was 8,220 francs.

PARIS PASTEUR INSTITUTE. — During the month of May, 146 persons were treated at the Pasteur Institute in Paris. Thirty-seven of these were bitten by animals in whom rabies was experimentally determined, ninety-one by animals whose condition was certified by a veterinarian, and eighteen bitten by animals suspected to be rabid.

KUSATSU, THE JAPANESE LEPROSY VILLAGE. — In the last number of the *Revue des deux Mondes*, M. Louis Bastide describes the Japanese leprosy village, Kusatsu. The waters of this resort are said to be especially beneficial in the treatment of leprosy. All the attendants, the proprietors and waiters at this resort are affected with the malady.

FRENCH STATISTICS. — In France the number of marriages in 1888 had fallen to 7.24 per 1,000 inhabitants. The average age of the women was 25 years, and of men 29 years and 9 months. The number of married men in the large cities is less than in the country. In Paris, 570 men out of each 1,000 are married, while in the country at large the proportion rises as high as 609.

Births were in the proportion of 23 to the 1,000 inhabitants, while in England the proportion rises as high as 32, and in Prussia to 48. Births are less numerous in the large cities, the department of the Seine (Paris) gave ten births to each 100 women between the ages of 15 and 45, while in the whole of France the figure reaches 12 to 13. Twenty-eight per cent. of all births in Paris are illegitimate, while for the whole country the percentage falls to 8.

A NEW CONGRESS. — A Congress of Microscopists will convene in Detroit on August 14, and continue four days. "The Influence of Electricity upon Protoplasm," will be the subject of the

opening address. Prof. Marshall D. Ewell, of Chicago, will present some of the medico-legal questions involved in the Cronin case.

ONTARIO MEDICAL SOCIETY. — The tenth annual meeting of the Association was held at Toronto, Dr. J. A. Temple, of Toronto, President. About two hundred and fifty members were present. It was one of the largest and most successful meetings yet held. The president's address contained a strong plea for a uniform license for the Dominion.

CHOLERA. — We have no reports of cholera in Russia or Upper Mesopotamia, and it is not advancing north or east of Massoul. The favorable period for its development in the cities of the Euphrates is later in the season, and an outbreak may be anticipated at any time. The same may be said of Persia, where cholera has not prevailed since 1873.

MEDICAL DEPARTMENT OF YALE COLLEGE. — We are glad to note that an effort will be made to endow this valuable medical school, and thus enable it to maintain its place in the front ranks of our medical institutions. The alumni of Yale College and the medical profession of Connecticut should make this endowment a fixed fact. They cannot do a better thing.

THE PETER-PAUL HOSPITAL, of St. Petersburg, has been given 50,000 rubles to erect barracks for the treatment of acute diseases.

A VISIT POSTPONED. — It had been very generally announced that Sir Morell Mackenzie would visit America and lecture in some of our principal cities during the month of October next. It is now reported that, by reason of ill health, he is obliged to cancel his engagements, and defer his visit until some later date.

THE EFFECTS OF EXTREME TEMPERATURES. — It will be a matter of interest to note the effects of the extreme temperatures now so general in this country, upon the general health. It is especially desirable to observe their influences upon the diseases of children. We have the conviction that during the present heated term a far less number of cases of sunstroke have been reported than usual. Is it possible that an unusual dryness in the atmosphere has conduced to this result?

TOPICS OF THE WEEK.

THE HIGHER MEDICINE.

De Quincey complains, in a passage in his autobiography, that "we English are haters and revilers of ourselves beyond all precedent, disparagers of our own eminent advantages beyond all sufferance of honor or good sense, and daily playing into the hands of our enemies." If this be true of educated Englishmen in general, it has a particular application to our own method of disparaging the art of medicine, especially in comparison with that of surgery, and nothing is more frequent amongst us than the complaint that medicine seems to lag behind whilst the physical sciences stride majestically forward. This disparaging attitude towards medicine arises partly from ignorance of the true province and nature of medical science, and partly from the universal practice amongst mankind of depreciating the things in which they excel. It is always the learned men who affect to despise letters, and the wealthy who speak disrespectfully of money. These can afford to do so. But an imperfect appreciation of the true nature of the physician's art is, we suspect, at the bottom of most of the reflections cast upon it. Sound judgment, combined with a high order of manual dexterity, will make an excellent surgeon; but a great physician needs almost the mental equipment of a great poet. What Emerson said of the poet is applicable in its degree to the true physician:

"As the eyes of Lynceus were said to see through the earth, so the poet turns the world to glass, and shows us all things in their right series and procession. For through that better perception, he stands one step nearer to things, and sees the flowing or metamorphosis. . . . The poet alone knows astronomy, chemistry, vegetation, and animation, for he does not stop at these facts, but employs them as signs."—EMERSON: *The Poet*.

It is not enough for the physician to know anatomy, physiology, chemistry, and pharmacology; he must not stop at knowing these, but must put them into the alembic of his brain, and transmute them into medical science. Professor Huxley said the other day that it would be simply manslaughter for a doctor to treat his patients on the raw and undigested principles of physiology. Medicine must, therefore, never be looked upon as a mere science, because it is much more than that; it is wisdom sublimated from many sciences; and this is why the Gulls, the Jenners, and the Clarks can never be as common as the mere scientists who work by rule and scale. When Coleridge was accused of plagiarising in his *Hymn to Chamouni*, from the poem of Frederica Bruu on the same subject, it was easily explained that though he had taken her frame work and used certain of her ideas, he had done so simply to glorify and endow them with life. With her they were dead phrases; Coleridge created the *Hymn to Chamouni* out of them. Just in proportion as the physician can create diagnosis and treatment for the cases which come before him as living and as various as the patients which are the subjects of the different diseases, just by so much is he a true physician. The inferior mind may see the same things as the superior, but the latter alone "sees their flowing

and metamorphosis." This is why patients would go and talk to Sir William Gull and derive benefit from the conversation, though they came away with no prescription, and took no drugs from his hands. The vulgar mind cannot understand the reason of this, and the hard scientist smiles a little superiorly at the idea.

We have been led into this train of reflection by reading Mr. Guy Beddoes' interesting work, *Habit and Health*. It is a selection from the works of the wisest physicians of modern times, and, within the compass of 350 pages, there is enshrined a medical philosophy which is the essence of the best teaching on health of body and mind. Nothing could better answer the objection that medical science has not kept pace with other branches of human knowledge than a perusal of its deeply instructive pages.

A medical writer recently stated that in some departments our art "had done nothing but retrograde for a thousand years, and in the last fifty years we have done little but pick up the clues which were lost when the Alexandrian library was burned." Yet the men of the past were not such fools as we are too apt to consider them; and as we read the wise advice of such men as Hunter, Wilson Philip, Paris, Abernethy, and Johnson, we are constrained to admire their insight and the breadth of their mental vision—if only because they have shown us how much lies within our own power in the maintenance of health. Such men speak with the authority of genius, and not as the scribes who lack such insight; and their genius is shown by their faith in the power of Nature to cure diseases, and the caution with which they estimate the power of medicines to do so. The true physician endeavors to learn the secrets of Nature by reverently questioning her, and Mr. Guy Beddoes has filled his pages with the answers which never fail that patient and respectful attitude. That we have in modern times learned this much at least is the earnest of our future advance. Sir Andrew Clark has pointed out the aid which physiology has rendered to the physician in a hundred ways—notably in respect to the influence of our modern undue work and worry in depriving the stomach of its rightful share of nerve force, and so causing it to fail in its duty. Dr. Andrew Combe, by application of the principles of physiology, showed how mental stimulus influences muscular action, and indicated the influence which the higher feelings, after they have the ascendancy, exert in promoting the general health. He has explained how the lower feelings, when unrestrained, how the mind oppressed with grief, anxiety or remorse, have a direct tendency to produce bad health. We believed all this before on the authority of philosophers and theologians. The physiological physician gives us scientific reasons for our faith. But he goes further. As we are not all intellect, we must not concentrate our vital action in the brain, or we shall deprive the stomach and other organs of their requisite nervous stimulus. Literary men, by a disregard of this axiom of the physiological physician, often become hypochondriacal dyspeptics, and blame the art of medicine for not curing by drugs what is the outcome of their own violence to physiology. As we turn the pages of this book, we meet, in

a score of pregnant passages, the warnings of wise physicians against the lives of "wear and tear" led by so many, Englishmen especially, the restless activity of mind ever directed to one end, and that not the highest. Physiology has pointed the moral, and doctors have preached the gospel of, serenity, but too often they have been as voices crying in the wilderness, for no man regardeth them, and the reproach of the almost certain result of the disregard of their teaching is laid at the door of medicine. The "terrible cost of nerve tissue," as George Henry Lewes aptly said, is disregarded even by the wisest of us; when intellectual activity is accompanied by agitating emotion it is ruinous. "Our passions are destroying flames." This is sound teaching, and doctors have endorsed it. The evil influence of anxiety on digestion alone is well ascertained; but as we cannot counteract it by drugs, we are often reproached for incompetence. The whole teaching of modern medicine is in the direction of a better regulated mode of life, prevention rather than cure, or if cured rather by a reconciliation with offended Nature than a warfare with disease by medicines.—Editorial, *British Medical Journal*.

THE PATHOGENESIS OF YELLOW FEVER.

Drs. Finlay and Delgado, who have for some time been engaged in investigating the bacteriology and pathology of yellow fever in Cuba, recently read a paper on the subject before the Havana Academy of Sciences, in which they detailed their experiments and discussed their significance, with special reference to the researches of Dr. Sternberg, who a short time ago paid a lengthened visit to the island for the purpose of studying the subject. They say that Sternberg's micrococcus *Finlayensis* has been found by Dr. Kinyoun on the skin of patients suffering from malarial fever, in localities where yellow fever does not occur, and that it is therefore impossible that this microorganism can bear any relation whatever to the causation of yellow fever. The micrococcus *tetragenus versatilis* has been found in the serous fluid of blisters on yellow fever patients, in spite of the most careful disinfection of the skin, in one-half of the cases examined, and in three-eighths of the specimens on which observations were made. This micrococcus was found in the blister serum of persons resident in Havana, and acclimatized, in two out of seven cases examined, and in three-thirteenths of the specimens taken, but only in cases where the disinfection of the skin had been omitted, or in which it had been but imperfectly performed. Nothing of the sort was found in any of the eight specimens taken from four persons whose skin had been as thoroughly disinfected as in the case of the yellow fever patients.—*Lancet*.

SHALL CONSUMPTIVES MARRY?

While in many ways the human race is progressing, and while the world is more temperate and charitable than in ages past, yet in many things we are really retrograding. Particularly is this the case in regard to the importance of raising healthy children.

The Spartan woman's business was to be the mother of brave and robust children. This was one of the prin-

cipal points observed by Plato in his "Philosophical Republic." He proposed that the most excellent among the men should be joined in marriage to the most excellent among the women; and the inferior citizens matched with the inferior females; and that the offspring of the first should be brought up and the offspring of the others should not. Yet to-day the great majority of marriages are made without any thought or idea of the character or vigor of the offspring that are to result therefrom.

Recently, the State Board of Health, perceiving the contagious nature of tuberculosis, have requested all Superior Judges, before sentencing a prisoner to the State Penitentiary, to have him examined by the County Physician, in order that special measures may be taken to prevent the contraction of this disease by other criminals. This movement we all applaud. But if the lives and health of these malefactors are so important, are not the lives of those who do not belong to the criminal classes important? Why should not the State adopt some means to prevent the marriage of individuals who have diseases that would be likely to be perpetuated in their offspring? There is not a physician before me to-day, but knows of marriages that he realized were unwise at the time they were made, and that resulted in children who were born to suffering, sickness and early death.

Now, what remedy can we offer for this terrible state of affairs, which is said to be undermining the strength of the people of California? If the county physician can examine every criminal before he is sent to the Penitentiary, why should not every man and woman who desire a license for marriage be required, before a license is issued, to show the County Clerk a certificate from the county physician, certifying that both he and she were free from any taint of consumption, gonorrhoea, syphilis or scrofula?

I ask you, gentlemen, to give this subject, which seems to me a very important one, your serious consideration.

[From President's Annual Address to the Medical Society of the State of California. By Walter Lindley, M.D.]

FRANCE AND FOREIGN MEDICAL MEN.

If the committee on the Medical Profession Bill in France is to have its way, foreign diplomas, of whatever country, are likely to be met with slight respect. The committee proposes that no medical man holding a foreign diploma, shall be allowed to practice in France unless he has received the degree of Doctor of Medicine from a French faculty, after having passed the required examinations. In certain cases, however, the Minister of Public Instruction may grant an exemption from some of the examinations. Foreign medical students are to be subjected to the same rules as French students. No person is to be allowed to practice as a dentist unless he has a diploma of doctor, or has obtained a special diploma as dentist, issued by the government, after examination and a preliminary course of study. Such suggestions give a poor opinion of the progress of truly liberal feeling in France. As they affect England we can only regret them, and hope they will still not become a law. The numerous people of British nationality in France, and the state of our medical education, tend to stamp such proposals as alike harsh and unreasonable.—*Lancet*.

PRACTICAL NOTES.

TREATMENT OF DYSENTERY BY ENEMATA OF CORROSIVE SUBLIMATE, ETC.

It is now generally recognized that certain morbid conditions of the intestinal tract may be favorably modified by various drugs belonging to the class of antiseptics, among which the chief are calomel, bismuth, naphthalin, and thymol. It is a noteworthy fact that these substances are insoluble, and it is in virtue of this property that they are enabled to run the gauntlet of the absorbents and exert their specific action upon the intestinal contents. The best of all antiseptics, corrosive sublimate, has thus far been of little use for the purpose mentioned, because it was supposed that no benefit could be exerted by any but a lethal dose. While this may be true of its administration *per os*, it is shown by G. Lemoine (*Bull. gen. de Thera.*, January, 1890) to be a mistake so far as concerns administration *per rectum*.

Lemoine has treated fifty-four cases of dysentery by enemata of corrosive sublimate, and with the happiest results. The strength of the solution was one to five thousand, of which two hundred grams were administered three times a day; later, two hundred grams of a solution of one to three thousand were injected twice daily. Improvement showed itself, as a rule, after the first injection, the first symptoms to disappear being the tormina and tenesmus. In a certain number of cases the tenesmus was so great that the enema could not be administered without a preliminary treatment, which consisted in painting the sphincter with a five per cent. solution of cocaine.

In acute cases a cure resulted from this treatment in from three to four days; whereas, in the more chronic cases which presented themselves for treatment on account of an acute exacerbation, a cure was effected, as a rule, in one day. The latter statement is somewhat startling in view of the well-known fact that chronic dysentery is decidedly rebellious to all the usual modes of treatment.—*Med. News*.

CACTUS GRANDIFLORUS IN HEART DISEASE.

Dr Orlando Jones publishes his experience of cactus grandiflorus, which he claims is likely to prove a useful adjunct to our resources, especially in asthenic conditions of the heart. Digitalis, strophanthus, and convallaria are not always reliable in the varied conditions of the heart with which we daily meet. The action of digitalis is not infrequently disappointing when we are dealing with a feeble heart, especially if that feebleness is excessive and of long duration. In such instances cactus grandiflorus may fill a gap where other remedies appear to be lacking. The action

of this remedy seems to be the very opposite of that of digitalis, that is, in the final stage it strengthens the heart.—*Brit. Med. Jour.*

EFFECTS OF CAFFEINE.

In an able article on the study of caffeine, Dr. Edward T. Reichert reached the following conclusions:

1. The pulse rate may be diminished during the first and last stages of the poisoning, but it is generally decidedly increased. During the first stage the diminution is due to stimulation of the cardio-inhibitory centres in the medulla oblongata and heart, and during the last stage to a direct depression of the heart. The increase in the pulse rate is due to a depression or paralysis of the above mentioned cardio-inhibitory centers.

2. Arterial pressure during the first stages of poisoning is generally either unaffected or diminished, but occasionally a trifling increase is noted; during subsequent stages it is diminished. The increase is due to a direct stimulant action upon the blood vessel walls, increasing vascular tension. The diminution is due chiefly to a direct depression of the heart, and to some extent, doubtless, to a secondary paralyzant action on the vessel walls.

3. The acceleration of the heart-beats may be accompanied by no appreciable alteration in blood-pressure, but generally by a more or less decided diminution, which is dependent upon cardiac depression.

4. Caffeine diminishes the heart's efficiency for work, arrests it in diastole, sometimes induces sudden paralysis, and is, therefore, a cardiac depressant.

5. The asserted stimulant action upon the circulation is, doubtless, subjective, and dependent upon an excitation of the cerebral centers.—*Medical News*.

CHLORALAMID.

Chloralamid is a combination of chloral and formamide. It comes in colorless crystals, having a bitter taste, being soluble in ten parts cold water and in one part alcohol. It is more freely soluble in warm water under 140° F. Excess of temperature causes separation of the ingredients.

It may be given in wine, water or capsule.

The dose is from twenty to forty grains.

It produces sleep in twenty-five to thirty minutes. The sleep lasts from six to eight hours.

The indications for its use are:

Nervous excitement.

Neurasthenia.

Insomnia in heart or lung disease.

It does not act where the insomnia is accompanied by severe pain or mental disturbance.—*Therapeutic Gazette*.

SOCIETY PROCEEDINGS.

British Medical Association.

*Annual Meeting held at Birmingham, Eng.,
July 1, 1890.*

DR. THOMAS MORE MADDEN, of Dublin, read a paper in the Section of Diseases of Children, on

PHYSICAL EDUCATION IN RELATION TO MENTAL DEVELOPMENT IN SCHOOL-LIFE.

The following is an abstract :

The respective claims of physical and mental training, and the evils arising from the neglect or abuse of either are obviously questions of the highest medical as well as social interest. This neglect now presents itself in two different aspects. On the one hand, the children of the poor in England are compulsorily subjected at an absurdly early age to a forcing and injurious system of mental cultivation. Whilst on the other hand, in the case of those of a better social position, the physical powers are not uncommonly over-trained at the expense of the mental faculties. Of these errors, the former is the most important, and to its operation is, I believe, largely ascribable the apparent diminution of physical stamina observable in too many of the youth of the present day as compared with the physically more robust, if intellectually less cultured generation of the pre-educational period. Looking at the overtaken and anæmic little children now chained to the desk by the School Boards, we might be tempted to believe

" 'Twas not the sires of such as these
Who dared the elements and pathless seas ;
But beings of another mould—
Rough, hardy, vigorous, manly, bold !"

At the present time, a large part of the first ten years of life, which should be primarily devoted to physical and moral training, is given up to the development of the mental powers: the child, when a mere infant, being compelled to attend some school, where the immature brain is forced into abnormal and disastrous activity. On its return home, jaded in mind and body, to prepare for next day's task, such a child is necessarily unfit for the enjoyment of the physical exercise which is essential for its bodily development and health, or for the still more important elementary training of the affections and moral faculties and instillments of religious principles, which are better acquirable from home teachings than from any School Board system. We are all of course agreed as to the duty of properly educating children so as to fit them mentally and bodily for the increasing requirements and competition of modern life. But as to the extent to which the former should be carried and the latter neglected in early childhood, there is unfortunately a great discrepancy between the rulers of

the Education Department and the views of those who have to deal in disease with the consequences of the violation of the laws of nature. And hence, whilst little children are thereby over-worked into disease or death, the physician must still raise his protesting voice, albeit it would apparently seem unheeded.

During the first eight or ten years of child-life, the amount of mental cultivation which a child's brain is capable of receiving with permanent advantages is much less than is commonly believed. No greater physiological mistake is possible than that of attempting any considerable degree of such culture until the sufficient development of the physical stamina and moral faculties is accomplished. The organ of the mind is as much a part of the body as the hand, and ere either can function properly, its vital force must be fostered and maintained by nutrition and developed by physical exercise. A large proportion of those who come within the provisions of the Elementary Education code are semi-starved children of the poorest class who, when thus debilitated by privation, are necessarily as much incapacitated for any mental strain as for the accomplishment of any herculean feat of physical strength; it being not less inhuman, injudicious, and impolitic to expect the former than it would be the latter from those so circumstanced.

If the State, for reasons of public policy, determines that all children shall be compulsorily educated from their earliest years, it should certainly afford the means by which this may be least injuriously and most effectually carried out, by providing food and physical training as well as mental education for every pauper child attending an Elementary school.

Amongst the results of overpressure in such schools under the Boards referred to, are brain diseases in all forms—viz., cephalitis, cerebritis, and meningitis, as well as headache, sleeplessness, neuroses of every kind, and other evidences of cerebro-nervous disorders. On no other ground can the increasing prevalence of these affections amongst the little victims of the Educational Department be accounted for or explained, than by ascribing them to the new factors "brain excitement" and "overpressure," which in the case of young children are now too commonly disastrously associated with the process of mis-directed education and neglected physical training.

In connection with the physical management of childhood, I may add a few words on the abuse of alcoholic stimulants. The evils resulting from the abuse of alcohol were never so prevalent as at present, and are traceable in the diseases of youth as well as in those of adult existence. The results of this acquired or inherited alcoholism are brought under clinical observation in the form of cerebral gastric and hepatic disorders, and especially cirrhosis of the liver, which as well as

the protean forms of cerebro-spinal diseases, and the various neuroses so frequently noticed in hospitals for children, and to which I have elsewhere directed attention. In the majority of these cases of juvenile alcoholism that have come under my care in the Children's Hospital, Dublin, this tendency appears inherited and most marked in those whose mothers were inebriates—intemperance in women also bearing in other ways on the diseases treated in hospitals for children, where its effects are strikingly evinced by the moral and physical deterioration of the offspring of the drunken, and by their special predisposition to strumous, tubercular, and other constitutional taints.

Under no circumstances should alcoholic stimulants be given to children, save in the guise and defined doses of other remedial agents—my experience in hospital and private practice, at home and abroad, having amply confirmed the view expressed in a work of mine published many years since, viz., that it is physiologically wrong, as well as morally unjustifiable, ever to allow a healthy child to taste alcohol in any form.

DR. MADDEN also read a paper in the Obstetric Section on

OVARIAN HERNIÆ; THEIR CAUSES, SYMPTOMS AND TREATMENT.

Ovarian herniæ are amongst the most neglected, although clinically they should be included amongst the most important, of the troubles that come before us in gynecological practice. In the great majority of cases they occur downwards into Douglas' space, and in such instances the left ovary is that most frequently displaced. The next in point of frequency of these herniæ, are those occurring in the inguinal regions where they are either found above Poupart's ligament, or is more commonly the case, follow the course of the canal of Nuck downwards and forwards, and so present in the labia where they may be readily recognized. In the former or directly downward variety of displacement, the ovary may be discovered on vaginal examination in the recto vaginal fossa as a small, oval-shaped, firm, elastic and highly sensitive tumor, bulging forward into the post-cervical *cul de sac*. In the larger number of cases ovarian herniæ, especially those in Douglas' space, result from the *vis a tergo* of abdominal or uterine tumors, or from the tension on the appendages occasioned by displacements of the uterus.

Diagnosis.—Until recently these herniæ when inguinal were very generally compounded with enlarged glands; when labial with other tumors in that situation; and when downwards with pelvic abscess, and hæmatocele. Or as often happens, they are mistaken for the retroflexed fundus uteri, and the patient suffering from an ovarian prolapse is vainly treated for a non-existent retroflexion or retroversion of the uterus.

There can now be no excuse for such errors. The sudden occurrence of the tumor, its physical character, the peculiar dull sickening pain, and the extreme tenderness and nausea manifest on examination, are sufficient to enable a correct diagnosis to be made by any competent gynecologist.

Treatment.—Where the ovarian herniæ takes place through either of the abdominal rings or downwards into Douglas' space, it may in some instances be reduced, as any other herniæ similar situated. In the majority of cases, however, such herniæ are irreducible when discovered, and must either be supported in the former case by applying a hollow truss, whilst in the latter case the prolapsed ovary must be replaced if possible, and kept in position with a peculiar form of pessary exhibited, specially devised by Dr. More Madden for the purpose, or failing this, if the symptoms be urgent the ovary must in some cases be removed.

The foregoing views are illustrated in the paper of which this is in an abstract by the details of several instances of ovarian herniæ, exemplifying the clinical history and treatment of such cases.

Allegheny County Medical Society.

Special Meeting, June 17, 1890.

J. A. LIPPINCOTT, M.D., PRESIDENT PRO TEM.,
IN THE CHAIR.

CASE OF SUSPECTED VOLVULUS.

DR. BATTEN reported: On Sunday, June 8, I saw a man who had been suffering for several days with intense abdominal pains. There was sickness at the stomach. I gave him a quarter of a grain morphia sulphate and extract of belladonna every hour. That did not control the pain, and Dr. Pollock was called in consultation. We continued with the belladonna and the sulphate of morphia every hour, and a hypodermic injection of morphia every six hours. This quieted him. The morphia and belladonna were continued steadily, and when the pains became unbearable, morphia was injected. He continued in that way with vomiting, until Friday. I omitted to say we injected warm water into the bowels. On Friday afternoon there was a passage of the bowels and we omitted the hypodermic injection and the morphia and belladonna, and gave him Rochelle salts in small doses. Yesterday he had three hours sleep. Last night he slept all night. To-day he is well.

DR. BUCHANAN: I would like to know if any tumor could be felt?

DR. BATTEN: No, but the abdomen was very hard.

DR. LANGE: I would submit that Dr. Batten

has given no evidence of intussusception; it might have been a case of ileus, a case of fecal obstruction or of typhlitis; Dr. Batten has given no evidence of volvulus.

DR. BATTEN: It was an obstruction of the bowels. No hard matter came away after the bowels commenced to move.

DR. HUSELTON: I would be disposed to criticise the treatment. I cannot readily understand why he should resort to purgatives in such a case. Of course the opiates would be all right to allay pain and quiet the bowels. It seems to me that purgatives would hardly be proper in such cases.

CASE OF PUERPERAL CONVULSIONS.

DR. DUFF: About one year ago, I reported a case of puerperal convulsions to this society. I was called to see a young woman of twenty, about two weeks before the time of labor. I found general anasarca as well as urine loaded with albumen, and I treated her, as I indicated in my report, by giving her digitalis. About six days after, I was called to see her. She was taken in convulsions, which could only be controlled by chloroform. These we controlled for about twenty four hours when they returned. I then dilated and delivered her of a male child. The child lived about a week. The mother made a good recovery and did not have convulsions after delivery. Against my orders she cohabitated with her husband and became pregnant within three months. Before pregnancy her urine was normal. At four months I examined her and found considerable albumen. I then put her upon nitroglycerine, one drop doses three times a day with the result that the albuminuria disappeared. At six months the albumen returned, as well as the dropsical condition. She was again put on nitroglycerine, and there remained a slight trace of albumen during her whole pregnancy. She was confined last Tuesday morning; I applied the forceps, delivered her, and she has made an excellent recovery. I might follow this case with another almost similar in history, in which nitroglycerine was used with as good results; but in a third case it did no good. Taking it all in all, however, my experience is that nitroglycerine is one of the best remedies we can use in these circumstances.

DR. CONNELL: Two such cases came under my notice. One showed about ten per cent. albumen; this was at the beginning of the seventh month. In about two weeks I was called to see her in convulsions. In another case was one in which I was called by Dr. Hallock. In this case there was no albumen in the urine. The woman had reached full term and the labor progressed slowly, but favorably; being first labor, of course it was a little tedious. During the second stage, she was seized with a terrific convulsion; during the time we were delivering her, which we

did as quickly as possible, she had three or four convulsions. There was no trace of albumen in her urine.

DR. STEWART: Albuminuria, uræmia and convulsions during pregnancy are invariably ascribed to circulation interferences by pressure of the enlarged uterus. But it is worthy of note that abdominal tumors as large as uterus at term, and occupying the same situation, do not entail these results. How can this be explained? It is to be remembered that pregnancy possesses other means to effect convulsions, namely, through the nervous system. In addition, discrimination is necessary, and all convulsions occurring during pregnancy, labor, and the lying in, are by no means to be ascribed to, and treated as the result of uræmia.

DR. GREEN: April 28th last, I was summoned to see a child six years of age, with typhoid fever. The patient remained ill with the characteristic temperature curves during twenty days. During the last six days cerebral symptoms seemed to predominate, and about the time the fever subsided and the temperature became normal, the child seemed to convalesce rapidly, and seemed cheerful. On the twenty-second day, when I called they told me the child had not spoken during the past night, and had spoken but once since I made my visit the day before. She continued in this mute condition for six days without uttering an audible note. During this time there did not seem to be any unusual delirium, but about twenty-four hours before she began to speak she manifested considerable delirium of rather a cheerful nature. It was on the seventh day she began again to speak, and within forty eight hours she talked again as usual. I think this case is unusual. The child made a good recovery, and is now apparently as well as before the illness.

DR. BUCHANAN: I have seen a case very similar to Dr. Green's. A child seven years old was attacked by typhoid fever, and passed through a typical course of fever lasting four weeks. The child was then unable to speak. It had no other cerebral symptoms whatever. In all other respects the case was an ordinary one. It returned to speech more gradually than Dr. Green's case, but finally completely recovered. I think it was almost a week from the time it began to say individual words until it was able to express its wants.

DR. HUSELTON: I have to report a case of dislocation of the hip-joint. The dislocation was that which is commonly known as the dorsal dislocation. The case had been seen and manipulated by another surgeon, and in the manipulation the head of the bone had slipped into the thyroid foramen, an accident which may happen to any one of us, and which is not so readily reduced. On my third effort I succeeded in dislodging the bone, and it returned to its place

with a snap so loud that I felt certain I had fractured the neck, but was glad to find that I had not. This is the third case of dislocation of the hip I have reduced by manipulation. The first one I had no difficulty with whatever. The second one I also succeeded in reducing without special effort. The patient made a quick recovery in this last case.

DR. McCANN: This is not an uncommon accident in attempting to reduce a dislocation of the hip-joint; in the effort to place the head of the bone in its normal position, unless there be extreme care exercised, it will be thrown into one of the other dislocations. Some years ago a man was struck on the back by a railway train, and sustained a dislocation of the hip, as well as other injuries. When he was brought into the hospital it was not appreciated that he was fatally injured, and an effort was made to reduce the dislocation. The effort most signally failed for a long time; finally the bone slipped into position just as the man was dying.

A post-mortem showed that not alone the fibro cartilage around the periphery of the acetabulum, but a bony section at the superior edge also was fractured off. The specimen was not retained. It would have been of value. A few years ago a child of 10 years was subjected to several efforts at reduction of the dislocation by manipulation. The head of the bone could be thrown into the thyroid foramen, and was apparently reduced, but as soon as the extension was removed there was an immediate reproduction of the dislocation, although a deformity did not exist. After two or three surgeons had made a number of efforts to reduce the dislocation by manipulation, the child was put in bed with extension by a splint, and eventually recovered. I am satisfied that this case—although, fortunately for the child, we had no opportunity to verify the opinion, for she lived—was also a case in which the cartilage, and perhaps some bone had been torn off.

Occasionally, as has been demonstrated by Dr. Murdoch, dislocation which cannot be reduced by the ordinary manipulations will be reduced by a little traction. I remember one in which I was able, by my own unaided effort, catching the foot and pulling powerfully upon the limb, to replace the head of the bone in the socket.

DR. PETTIT: Two cases I saw in the hospital which were reduced by extension. One had been worked with a long time by a half-dozen physicians and attendants, and there was failure to reduce the dislocation. While they were rigging up the rope and pulley arrangement to try, some one grasped the man by the limb, and by no great force, but simply by steady pulling for may be three-fourths of a minute, the bone slipped into place. Since that time I have seen one other case reduced in the same manner after quite a

good deal of manipulation without success, by extension without a great deal of force, but the force being kept up some minutes steadily.

DR. BUCHANAN: I recall a case in which efforts were made to reduce a dislocation of the hip in a railroad man, by, I suppose, five or six competent surgeons, and when they were through, the reduction was unaccomplished, and the opinion was expressed that it must be a fracture of the rim of the acetabulum neck, and that it was impossible to reduce it. Dr. LeMoyne requested to be permitted to put on an extension, and by extension and some little manipulation, not the ordinary manipulation, but manipulation during extension, he reduced this hip-joint. This man was on the point of being returned to bed with his luxation unreduced when the successful attempt was made.

DR. BATTEN: I had a case of dislocation of the hip, and could not reduce it. Dr. Emmerling, Dr. Dickson and Dr. Reiter were present. The bone went into place with a snap under Dr. Reiter's manipulation.

DR. KÖENIG: I would like to ask if it might not be possible that the position of the rent in the capsule has much to do with the return of the bone; where the surgeon is not able to return the bone by the method of manipulation, and where the method of extension is readily followed by reduction of the bone, is not the location of the rent a factor in the case?

DR. McCANN: What I wish to say is, that in the cases of extension, the patient being entirely under the influence of an anæsthetic, completely relaxed, the amount of force used was not great. In my own cases I did not exert a very great force, and it slipped in.

Another method consists in etherizing the patient, laying him on his abdomen on a table, and allowing the limb to hang down over the end of the table. The result is that after a certain length of time the muscles of the abdomen relax, and with almost no manipulation the head of the bone is thrown into its proper position.

DR. HUSELTON: A farmer sustained a simple dislocation of the shoulder. He was taken into the town of Harmony, where two surgeons tried to reduce the dislocation. They failed, and had the man loaded into a spring wagon and sent to my office, with a note asking me to call in some of my friends and attempt to reduce the dislocation, and in the event of a failure, to send him to the West Penn. Hospital. I said I would make an attempt to reduce it myself. I took the patient into my back office, laid him upon the lounge, and standing behind him, I pulled and told him to pull, which he did, and I think the dislocation was reduced in about two minutes. Now these were competent men who failed with this case, and they seemed to have exhausted every effort. Therefore I think we should be very charitable

indeed before we condemn a physician for failure to reduce a dislocation.

THREE CASES OF FATAL PERICARDITIS, WITH AUTOPSIES IN TWO.

DR. LANGE: I wish to report three fatal cases of pericarditis. The first was a large German, previously healthy, with no discoverable hereditary taint except that his mother had died of lung disease at the age of 32. This man was a cooper by occupation, and boasted of his previous excellent health. He presented on examination the usual signs of pericarditis except that of pain. He presented in addition the ordinary signs and symptoms of a slight fever. Pericarditis was suspected in this case, and during the next three weeks under observation it was ascertained to exist. This man died of heart failure on the water-closet. The autopsy showed the heart to be the so-called hairy heart. There were numerous and strong adhesions between the parietal and visceral layers. Other lesions consisting of organized bands from the visceral to the parietal pericardium of from $\frac{1}{4}$ to 1 inch in length, and as strong as the chordæ tendinæ. These must have exerted a potent and pernicious influence upon the contraction and rotation of the organ. Still other bands were free at one extremity, which floated in the very limited amount of effusion. This was a tubercular pericarditis, and nowhere else throughout the body was tubercle discovered.

The second case occurred in an Italian æt. 35, who had a left-sided, lower-lobed croupous pneumonia, accompanied by a pleuritic effusion large enough to require tapping. In the third week, resolution not happening, the pneumonia became purulent, and thus developed the secondary pericarditis. On autopsy the heart was found to be like the first and the effusion to be small. This patient died while sitting on the edge of his bed.

The third case was an Irishman, a very active man, yardmaster at one of the railroads here. He came to my office complaining of shortness of breath, and presented the signs, symptoms and phenomena of a mild fever. He had no pain, little headache, little backache, general malaise, anorexia; in short, all the signs and symptoms of a slight fever, a pericardiac friction murmur, and a tumbling heart, but no enlarged area of cardiac dulness. Dyspnoea was his only complaint. He had had it two months and it was growing. After two weeks he thought himself so well that we could not restrain him. He would leave his bed and go about his room. One Sunday morning he sent for a barber to shave him. He got up, sat on a chair, took the Sunday paper to look it over and fell dead. There was no post-mortem. From repeated physical examinations I believe the conditions would have been found as in the other cases. In pericarditis of gravity, which cases constitute the small minority, there

is one remedy to which we at last arrive. This is digitalis. It is said that digitalis is proper to strengthen the action of the heart. My experience with these cases and others leads me to think that digitalis has very little effect in increasing the power of the heart in pericarditis.

Another point is that death from pericarditis, which is usually ascribed to the size of the effusion when it is large, may be due rather to interference with the action of the heart by adhesion. It is my opinion that the latter is frequently, and that large effusions are rarely, the cause of death. Large effusions belong rather to those inflammations of the pericardium which complicate rheumatism and nephritis, and which are not fatal. When the effusion is large, what can we expect from digitalis? The interference in this case is not with contraction, but with the filling—the diastole of the heart; and this being purely a muscular relaxation is uninfluenced by digitalis. The only effect, then, that we should expect, is that which would happen under the administration of digitalis in, for instance, the granular degeneration of typhoid fever, pneumonia, or any disease of gravity and duration; and this, it must be confessed, is little. The effect, indeed, would be less, for even if the systole should be improved by digitalis, the diastole cannot be, and consequently the intra-arterial tension is not increased. On the other hand, if the adhesions constitute the obstacle to efficient contraction, we can understand how an increase of power in systole by digitalis might fracture, tear off, or free the parietal from the visceral pericardium, and thus allow an increased quantity of blood in the arterial system. But I have not observed this to happen, and the administration of digitalis for pericarditis is pregnant with disappointment, and is in striking contrast with its effects in heart dilatation.

DOMESTIC CORRESPONDENCE.

It was Diphtheria that Killed them, in Montmorency and Otsego Counties.

To the Editor:—The outbreak of dangerous disease which has prevailed in Otsego and Montmorency counties since last spring, and which local physicians said was not diphtheria, and permitted two of the corpses to be sent to Lapeer county, where a case of diphtheria occurred in a person who viewed the remains, has been investigated by the State Board of Health, the investigation having been requested by a union meeting of the boards of health of three townships in those counties.

Prof. Vaughan, of the University, a member of the State Board of Health, went and made the investigation. He has also made bacteriological ex-

aminations of the membrane from the throats of two of the patients, and has found and propagated the microorganisms which are believed to cause diphtheria. This species of microorganism is known as Löffler's bacillus. Prof. Vaughan says: "The bacilli have been compared with the Löffler bacillus, which I had obtained in the laboratory of Dr. Koch, at Berlin, and the identity of the two cannot be questioned." He reports the disease to be unmistakably diphtheria, as proved by symptoms, physical signs, throat paralysis, etc.; and the diagnosis is sustained by the bacteriological examination. It is now hoped and expected that the local authorities will take thorough measures, and stamp out the disease.

HENRY B. BAKER, Secretary.

Office of the State Board of Health, Lansing, Mich.,
July 22, 1890.

Medical Education.

To the Editor:—I notice the articles in regard to medical education in *THE JOURNAL*. Those editorials, so far as their influence upon the action of this Board is concerned, are of no weight; the Board will not recede from its position. When the time comes the Board will increase its requirements. The rule of three courses of lectures before graduation is already assured of general observance. You have doubtless noticed, too, that by the new law of the State of New York, which goes into effect September, 1891, examinations of medical students will not be held unless candidates have first taken three annual courses of lectures. Such legislation, and support from colleges and medical men, encourages the Board to maintain a strict adherence to its requirements, as published.

Very truly yours,

JOHN H. RAUCH,

Secretary Illinois State Board of Health.

Springfield, Ill., July 2, 1890.

American vs. European Medical Education.

To the Editor:—In the admirable and timely paper read before the Section on State Medicine, under the title of "American Versus European Medical Education" (*vide* No. 3, Vol. xv, of *THE JOURNAL*), the author, Dr. Samuel O. L. Potter, unintentionally no doubt, does an injustice to the Medical Department of the University of Georgetown, by placing this school in class second of the four comprising his classification (p. 85, loc. cit.).

This school should stand in his first class for the following reasons:

1. It requires a preliminary examination as a condition for admission.
2. It adopted a three years' graded course in 1878, which it has never abandoned.
3. It requires attendance upon three full co-

of lectures, of seven months each, in all branches, as a requirement for graduation.

4. The graded classes are required to pass a satisfactory examination before being advanced to the class above.

5. It gives full clinical instruction in the general and special branches.

All this is set forth in the annual Announcement, and strictly adhered to by the Faculty. Since the adoption of the three years' curriculum, the Faculty has had every reason to be satisfied with the progress of the school, and has never felt inclined to return to the unsatisfactory and inadequate two years' courses of study. Respectfully,

C. H. A. KLEINSCHMIDT, M.D.,
Professor of Physiology, Medical Department
University of Georgetown.

Washington, D. C., July 20, 1890.

BOOK REVIEWS.

HOW TO EXAMINE FOR LIFE INSURANCE. By JOHN M. KEATING, M.D., President of the Board of Life Insurance Directors, etc. Philadelphia: P. Blakiston, Son & Co. 1890.

This is an octavo of two hundred pages, well adapted to fulfill the purpose for which it is published, namely, to give concise and reliable instruction as to the proper methods of making examinations of applicants for life insurance. Part first of this work contains a terse and practical dissertation upon physical diagnosis, upon the habits and developments of those examined, that should be made matters of special observation. In the second part we have the special instructions of some twenty or more of the leading insurance companies as they are issued to their medical examiners. Thus there is here given in concise form, the combined wisdom of those who have made this subject a specialty. The volume is well worth a careful study by those who are called upon to make examinations.

THE SURGERY OF THE KIDNEYS; being the Harveian Lectures, 1889, by KNOWSLEY THORNTON, M.C., Surgeon to the Samaritan Free Hospital, etc. London: Charles Griffin & Co., Exeter street, Strand. 1890.

This is a valuable little work of 100 pages. It is a reprint of three lectures delivered by the author in 1889 upon the important subjects of renal pathology and renal surgery. In the first lecture the difficulties are considered in early diagnosis, as to whether a case is medical or surgical. The anatomical positions and relations of the kidneys are carefully considered; malformations, displacements, congenital and acquired, are described; the etiology, pathology, symptoms and treatment of hydro-nephrosis, pyo-

pyelitis, pyelo-nephritis and renal abscess are concisely stated. Renal calculus is next considered, and the history of the operation for its removal, the steps of the procedure, and the treatment of the wound.

The first part of the second lecture is devoted to the pathology and treatment of cystic formations. In the second portion, directions are given for the performance of nephrotomy and nephrectomy. Then follows a statement of the conditions in which the author would restrict the use of puncture, and in which he would restrict the operation of nephrotomy.

The third lecture treats of renal tumors, their pathology and treatment; closing with a description of the steps of procedure in abdominal nephrectomy. To those who are specially interested in renal surgery this little volume will prove a valuable addition to the literature which they already have on hand.

NEGROLOGY.

Henry Holmes Longstreet, M.D.

Dr. Henry Holmes Longstreet, who died at Bordentown, N. J., July 6, in his 71st year, was a man of mark in his community and the medical history of his State. He was a director in the banking, gas, water and other companies developing the resources of Burlington County, in which he settled for medical practice directly after his graduation, from the College of Physicians and Surgeons, in 1842, and where he filled out nearly half a century of energetic usefulness.

DR. A. EUGENE FALKEN, aged 41 years, was killed by the cars in Bridgeport, Conn., July 17, 1890.

DR. EDWARD G. O'MALLEY, of Wilkesbarre, Pa., was thrown from a horse while out riding in Aspen, Col., July 19, 1890, and was instantly killed. He was at one time Coroner of Luzerne county. He was 33 years of age, and was born in New Haven, Conn., where he resided until within a few years. He graduated in 1881 from the New York University Medical College.

DR. SAMUEL B. MCCLELLAN, a former resident of Hudson, N. Y., recently died in Kenosha, Wis., at the age of 84 years.

DR. JAMES D. STRAWBRIDGE died suddenly at his home in Danville, Pa., July 19, 1890. He was born in Montour county, Pa., in 1824, and graduated from Princeton College, and in 1875 from the Jefferson Medical College of Philadelphia. He served through the late war, was captured while serving as Medical Director of the Eighteenth Army Corps, and spent three months in Libby prison. Dr. Strawbridge represented

the Thirteenth Pennsylvania District in the Forty-third Congress.

DR. DANIEL WELLS, aged 75, died at his residence in Newburgh on July 11, 1890. He was educated in New York, where he was once a Police Surgeon under the municipal government.

DR. JAMES R. MATTHEWS, long a successful practicing physician at Bloomville, N. Y., died July 13, 1890, aged 45 years. He was graduated by the Albany Medical College in 1871.

MISCELLANY.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from July 26, 1890, to August 1, 1890.

Capt. Curtis E. Price, Asst. Surgeon U. S. A., is granted leave of absence for ten days. With the approval of the Acting Secretary of War. Par. 3, S. O. 175, A. G. O., Washington, July 29, 1890.

Official List of Changes in the Medical Corps of the U. S. Navy for the Week Ending August 2, 1890.

Asst. Surgeon N. J. Blackwood, ordered to duty in the Bureau of Medicine and Surgery.

Medical Director P. S. Wales, ordered to duty in charge of the Museum of Hygiene.

Official List of Changes of Stations and Duties of Medical Officers of the U. S. Marine-Hospital Service, for the Three Weeks Ending July 26, 1890.

Surgeon P. H. Bailhache, granted leave of absence for seven days. July 26, 1890.

Surgeon W. H. H. Hutton, to proceed to Chicago, Ill., on special duty. July 24, 1890.

Surgeon John Godfrey, granted leave of absence for thirty days. July 21, 1890.

P. A. Surgeon C. T. Peckham, when relieved at Memphis, Tenn., to proceed to St. Louis, Mo., and assume command of the Service. July 9, 1890.

P. A. Surgeon S. C. Devan, granted leave of absence for twenty-five days. July 15, 1890.

P. A. Surgeon P. C. Kalloch, orders of July 5, to St. Louis, Mo., revoked. July 8, 1890.

P. A. Surgeon L. L. Williams, relieved from duty at Baltimore, Md., and to assume command of Service at Memphis, Tenn. July 8, 1890.

Asst. Surgeon T. B. Perry, to proceed to Baltimore, Md., for temporary duty. July 17, 1890.

Asst. Surgeon J. B. Stoner, granted leave of absence for thirty days. July 21, 1890.

Asst. Surgeon S. H. Hussey, to proceed to Pittsburgh, Pa., for temporary duty. July 18, 1890.

Asst. Surgeon G. B. Young, granted leave of absence for fifteen days, on account of sickness. July 12, 1890.

Asst. Surgeon W. G. Stimpson, to proceed to Buffalo, N. Y., for temporary duty. July 12, 1890.

Asst. Surgeon E. R. Houghton, to report to the Medical officer in command, New York Marine-Hospital, for temporary duty. July 14, 1890.

PROMOTION.

P. A. Surgeon G. M. Magruder, to rank as such from July 12, 1890.

APPOINTMENTS.

Asst. Surgeon E. R. Houghton, to rank as such from July 12, 1890.

Asst. Surgeon A. L. Benedict, to rank as such from July 24, 1890.

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ORIGINAL ARTICLES.

CALOMEL AS A DIURETIC.

Read in the Section of Practice of Medicine, Materia Medica and Physiology, at the Forty-first Annual Meeting of the American Medical Association, at Nashville, Tenn., June, 1890.

BY GEO. A. FACKLER, M.D.,

PROFESSOR OF MATERIA MEDICA AND THERAPEUTICS AT CINCINNATI WOMAN'S MEDICAL COLLEGE.

The purpose of this paper is to briefly present to the notice of the Section a subject which may be of interest to the general practitioner. Its purpose is to call attention to a remedy for the relief of a condition which is frequently a source of annoyance to the medical adviser. Although they do not form the larger portion of cases, still every one has his fair quota of diseases of the heart to attend, and no complication of these affections is as unsatisfactory to treat as the oedema. Hence, any contribution to the literature of this subject, it seems to me at least, should not be allowed to pass unnoticed. Such contributions have appeared in our journals during the past three or four years and, hence, it may be profitable to bestow more than a passing glance at the observations of the original investigators of the action of calomel as a diuretic.

In 1884, Dr. Ernst Jendrassik, assistant at the clinic of Professor Wagner, in Budapest, had under treatment a severe case of dropsy, due to disturbance of circulation. With the consent of Wagner, and under the supposition that the affection might be of a syphilitic nature, he ordered inunctions of unguent. cinereum. Subsequently, in order to accelerate the action of this remedy, he administered to the patient small doses of calomel in combination with jalap. Within two days of the adoption of the latter course of treatment, the quantity of urine voided was increased to such a degree as to cause a disappearance of the dropsy within a few days. A few weeks thereafter the dropsy returned, but yielded as readily to the same treatment. Further investigation convinced Jendrassik that this action could be ascribed solely to the calomel. A report of his observations was published toward the end of 1885 in a Hungarian journal, but seems to have attracted no special attention until a more extensive review of his ex-

periments appeared in the *Arch. f. Klin. Med.* in 1886, and a confirmation of his statements by Stillér in the *Wiener Med. Wochenschrift* of the same year. "Although the diuretic action of calomel as an adjuvant to others had been observed by some of the older authors, yet it was considered very inferior to those which our experience has proven to be almost valueless, and nowhere are we able to find that stress laid upon its effectiveness such as the experiments of Jendrassik and others demonstrates it possesses. In modern text books its diuretic action is entirely ignored, and only on account of its purgative properties is it recommended in dropsy. The results obtained by those who have made careful and numerous observations with calomel have created a great amount of surprise, especially since it is an agent which formerly had been so extensively employed. Although within the past five years it has again come into more general use, even as a purgative in dropsy, and yet its *par excellence*, diuretic action, remains unnoticed.

"After a perusal of the older text-books, nothing seems less difficult than to remove a dropsical fluid from the body, since the remedies known as diuretics are almost innumerable. But as is the rule in therapy, the number of remedies recommended for the relief of a certain condition is in inverse proportion to the number of good results obtained therefrom. The larger portion of this class has been eliminated from general use, and the remainder, digitalis excepted, are simply employed for want of better."

As stated above, Jendrassik's discovery was an accident. It may be interesting, then, to briefly review his subsequent experiments, the brilliant results of which led him to publish his paper upon the subject. In it he describes at great length seven cases observed in Wagner's clinic. All of the patients suffered with distinct cardiac lesions, and in all cases other diuretics had been previously employed without avail. One factor, alone, detracts from the value of these observations, and that is the fact that he administered calomel in combination with jalap.

He does not fail, however, to discuss the question as to which of the two the diuretic action should be ascribed to.

He attempted to obtain

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the omission of calomel, but quickly returned to the combination when he found the diuretic action ceased and the condition of the patient became aggravated. In the first case the inhibition of the calomel-jalap powders produced profuse diuresis within three days. About four weeks thereafter jalap alone was given, but no increase in the amount of urine was noted. Two days use of the calomel-jalap powder, however, brought on a diuresis that speedily doubled the amount of urine voided.

In twenty-four experiments upon six different patients the amount of urine was increased in twenty-three. As a peculiar feature it was observed that the polyuria began two or four days after the beginning of the treatment. The increase is rapid. The maximum discharge in the majority of cases occurred on the second day of the polyuria. From that period the amount gradually decreased until within five days to two weeks the normal standard was reached.

The degree of the diuresis depended upon two factors: the size of the dose administered and the amount of the existing dropsy. Jendrassik found that as a rule 0.20 or grs. iij, given three times a day, produced the desired effect. This may vary somewhat, depending upon the facility with which the remedy is absorbed.

As is well known, calomel as such, is insoluble, and only as an albumate can it be absorbed. The process of this chemical combination differs in different individuals and under different circumstances. It was noticed that the diuretic effect would only take place when evidences of its absorption became manifest, *i. e.*, metallic taste, increased salivation and stomatitis.

It is important to consider the interval that elapses between the beginning of treatment and the inception of the diuresis. Jendrassik, at first, thought this due to insufficient dosage, but subsequent experiments convinced him that it was useless to increase the dose or continue the calomel until the diuretic effect became evident. Its administration for one or two days will produce polyuria, after a proper lapse of time, as effectually as if given during the intervening days. Again, calomel given during the stage of diuresis did not prolong it. In the majority of cases it was observed that if the dose was of the proper size, the diuresis continued until the oedema had entirely vanished.

Jendrassik found it difficult to explain the action of calomel as a diuretic. In cardiac lesion, during the stage of depraved compensation, it has been only possible, with the agents at our command, to cause increased diuresis with such agents as will invigorate the heart's action. Upon this property depends the action of digitalis and caffeine. Under no circumstances will these remedies yield such pronounced beneficial results as calomel. Judging

from our experience with cardiac stimulants, what an enormous increase in the heart's force would be demanded in order to cause such an increase in the urine voided as was obtained by Jendrassik, *i. e.*, an increase from 7-800 ccm. one day, to five litres upon the next, and eight or nine litres on the following.

Indirectly the calomel exerts a beneficial influence upon the heart, in that it removes the general oedema and causes improvement in the general condition. It is found that in three cases sleep is restored, the appetite improves, and in consequence thereof other cardiac compensation is, to a certain degree, restored.

Jendrassik supposed, at first, that calomel acts upon the kidneys, stimulating them to increased secretion, in consequence of which there is an increased absorption of the dropsical fluid. Not being able to produce polyuria by calomel in the healthy individual, he discarded this theory. He then supposed its effect to a property of absorption on the part of the blood, which the remedy might produce.

Rosenheim experimented not only with calomel, but other preparations of mercury, and extended his observations to liver and kidney affections. He found calomel to be the most reliable, and praised it as "indicative, especially in dropsies due to heart disease, with or without complications on part of the kidneys." As an objection he urges its transitory effect, and the detriment which mercurilization may cause in the general organism. Meyjes, after observations in fifteen cases, recommends calomel as a powerful adjunct to digitalis and as a great contribution to the therapy of disturbances of circulation. He found it useless in renal dropsies. In like manner Paul Terray and E. Biro substantiate the statements as to the eminently diuretic action of calomel in cardiac lesions.

All observers, with the exception of the latter, found it of value in some cases of cirrhosis of the liver. Rosenheim advanced as a theory that the point of attack of the remedy may be sought for in the oedematous tissues. According to his views, the mercury, which he detected in the exudations, caused a contraction of the tissues, and a consequent expressing of the fluids into the circulation.

Stintznig undertook a series of experiments to find a satisfactory explanation of the diuretic action of calomel. He treated in all twenty-seven patients, twenty-one with, and six without dropsy. In thirteen of these former, complete success was obtained, and in eight only partial or none. Eighteen of his cases suffered with heart lesions, and in three the dropsy was due to cirrhosis of the liver.

No one has made more valuable and exact observations than Stintznig upon his cases. He presented a voluminous report of details and re-

sults in each case. They may be summed up as follows:

1. Calomel is a diuretic which acts more energetically than any other known diuretic. The diuretic properties are manifested to a lighter degree in the normal state, and to a very pronounced degree in certain forms of dropsy.

2. Its diuretic action is most marked in dropsies due to cardiac lesions, whether on part of the valves or muscular tissue. It will only fail partly, or entirely, in which ruptured compensation has attained an unusual degree, in which case, however, no other remedy is effectual. Other forms of dropsy, especially that of renal origin, are less amenable to treatment with calomel.

3. A certain proportion of its good effects may be ascribed to the occasional diarrhoea, but even when calomel is given with opium to check the diarrhoea, polyuria is established.

4. Its beneficial effect upon the general condition is marked.

5. The undesirable complications, as salivation, stomatitis, diarrhoea, etc., may be counteracted by the proper prophylactic and remedial agents.

6. The appropriate dose is that recommended by Dr. Jendrassik, about 0.2, but given alone or with opium.

7. The beginning of increased urination occurs on the second to fourth day; rarely delayed until the fifth. Polyuria continues for at least three, generally four or five, and occasionally as long as twelve days.

Stintznig excludes any direct action of the remedy upon the heart or blood vessels. Never has he observed an improvement in tone or frequency of the pulse, until after subsidence of the oedema. Thirst was never marked, hence the diuresis cannot be ascribed to copious administration of water. He also excludes Rosenheim's theory. But two remain: That of Jendrassik and Stiller, who believe that the effect is due to absorption on part of the blood of the exuded fluids, or that suggested by Furbinger, that on part of the blood there takes place stimulation of the epithelium of the kidney. In favor of the first we may suppose the formation in the blood of a body possessing hygroscopic properties. Against the latter it may be urged that, according to most observers, no diuretic action takes place in non-dropsical cases. Yet Stintznig claims, that since he did, by means of small doses of calomel, excite diuresis in the latter cases, he was inclined to adopt Furbinger's theory.

I would here take the opportunity of first presenting a case, which had been under my observation for some time, and which illustrates the foregoing remarks:

Case r.—Without entering into the previous history of the case, except to state that no specific

history could be obtained, I will describe the patient's condition as it was presented to me on February 26, 1889. There existed mitral insufficiency, with hypertrophy of the left and dilatation of the right ventricle. Liver enlarged, considerable ascites and extensive oedema of the lower extremities. Pulse not very rapid, but bounding. Complained of dyspnoea.

Patient was at first placed upon *infus. digitalis*, but the only improvement after five days treatment was in respect to respiration and sleep. Citrate of caffeine was substituted for *digitalis*, and although this caused a slight increase of the amount of urine voided, the dyspnoea became more troublesome, so that we returned to *digitalis*. Thus various remedies, but as a rule *digitalis*, were given for about two weeks, when I determined to try calomel.

March 16, three doses of calomel, 4 gr. each, were administered. This was followed by copious alvial discharge and relief of dyspnoea. No change was observed in the urine, of which patient passed less than one quart in twenty-four hours.

March 17. Again three doses of calomel were administered, but combined with morphia in order to prevent inordinate action on part of the intestines. This was followed by two alvine discharges. No change in urine. The same procedure was adopted March 18. No calomel given on the following day.

March 20. Suddenly, about 7 P.M., profuse diuresis began, so that within twenty-four hours patient passed $4\frac{1}{2}$ quarts of water. Its specific gravity fell from 1,019 to 1,007. Polyuria continued until March 25, when it was found that the oedema had almost entirely disappeared; no dyspnoea; general condition markedly improved. Salivation was marked, but easily controlled, as were also symptoms of stomatitis after cessation of treatment.

Patient returned April 15th with similar symptoms, but to a less degree of severity than when first seen. The calomel treatment was again instituted and acted just as powerfully as before. But one difference was noticed, and that was that the polyuria began on the fifth day and lasted one week. Patient remained under observation until May 6, when he left the city and has not been heard of since.

In this case calomel was so administered as to determine whether any diuretic action was possessed by it. It was not combined with jalap, as by Jendrassik, since jalap in all probability, by increasing peristalsis, accelerates the elimination of calomel. The latter can act as a diuretic only if absorbed in the shape of an albuminate; hence, it should be our object to retain it as long as possible, in order to effect this change. With this object in view it was, according to instructions of Stintznig and others, combined with morphia.

This case, then, would present strong evidence toward the value of calomel as a diuretic.

Case 2.—A. M., laborer, came under observation Oct. 2, 1889. Six months previously had suffered, for a period of one month, with dyspnoea and oedema of lower extremities. These symptoms returned August 15, 1889, and gradually increased in severity. Present condition: Extensive anasarca of lower extremities, enlargement of right ventricle, systolic murmur at apex, enlargement of liver, some abdominal ascites, traces of albumen.

Oct. 2. Urine voided, two pints.

Oct. 3. Urine voided, one and one-half pint; three doses of calomel, āā gr. iij, with morphia.

Oct. 4. Urine voided, two pints, three doses of calomel, āā gr. iij, with morphia.

Oct. 5. Urine voided, five pints; three doses of calomel, āā gr. iij, with morphia.

Oct. 6. Urine voided, ten pints; three doses of calomel, āā gr. iij, with morphia.

Oct. 7. Urine voided, nine pints; no calomel.

Oct. 8. Urine voided, ten pints; no calomel.

Oct. 10. Urine voided, six pints; no calomel.

Oct. 11. Urine voided, eight pints; one dose of calomel, gr. iv.

Oct. 12. Urine voided, four pints; no calomel.

Oct. 13. Urine voided, five pints.

Oct. 14. Urine voided, six pints.

Oct. 15. Urine voided, four pints.

After this date, gradual approach to normal amount. During the treatment the oedema had vanished, specific gravity of urine falling from 1,020 to 1,008 at times. Disappearance of albumen; all symptoms improved. Patient, as a rule, had two fecal evacuations a day, and on but one day were they increased in number to 5. Slight salivation and stomatitis.

Case 3.—A. B., lady school-teacher, 45 years of age, came under observation March 15, 1890. Symptoms: Dyspnoea, slight oedema of lower extremities and genitalia, very slight increase in cardiac area of dulness toward left side, rapid heart's action, systolic murmur, scarcely appreciable ascites, no albumen.

March 15. Amount of urine, less than one pint; specific gravity, 1,022; three doses calomel, āā gr. iij, with morphia.

March 16. Amount of urine, less than one pint; specific gravity, 1,021; three doses calomel, āā gr. iij, with morphia.

March 17. Amount of urine, one pint; specific gravity, 1,021; three doses calomel, āā gr. iij, with morphia.

March 18. Amount of urine, one and three-quarters pints; specific gravity, 1,016; three doses calomel, āā gr. iij, with morphia.

March 19. No calomel, severe stomatitis; amount of urine, two pints; specific gravity, 1,015.

March 20. Amount of urine, one and a half pints; specific gravity, 1,014. No calomel.

March 21. Amount of urine, two and a half pints; specific gravity, 1,010.

March 22. Amount of urine, four pints; specific gravity, 1,010.

March 23. Amount of urine, five pints; specific gravity, 1,008.

March 24. Amount of urine, eight pints; specific gravity, 1,006.

After this date daily amount grew gradually smaller, but never below the normal. Patient discharged April 16. No return of oedema. The appearance of diuresis in this case was relatively late, viz., eighth day.

Case 4.—L. O., man, 29 years of age. Case seen in consultation. Slight cyanosis, pulse 104, small and irregular; perceptible venous pulsation in cervical region, systolic murmur, great cardiac hypertrophy, extensive ascites, liver enlarged, no albumen, anasarca. Saw patient April 2, 1890. Was passing about one pint of water per day; specific gravity, 1,025. Calomel administered for a period of four days made not the slightest impression upon the urinary secretions or oedema, and, therefore, no alleviation of symptoms. Besides this a halt was called to the treatment by the severe diarrhoea and stomatitis. Indications for digitalis and camphor appeared. Patient died May 8.

This case illustrates the fact that in the last stage of cardiac insufficiency the diuretic action of calomel can not be depended upon. In this case all remedies as digitalis, pilocarpin, caffeine, baths, etc., had proven unavailing in the hands of the attending physician.

Before closing, it may be well to state that experiments have been and are being instituted as to the diuretic action possessed by other mercurial compounds. Thus far, testimony as to their value is rather conflicting, although some, among them Biéganski, claim that, administered hypodermically, mercurials, especially the bichloride, will act more promptly than calomel.

From the reports thus far presented, we may safely conclude that:

1. Calomel, and in all probability other mercurial compounds, possess diuretic properties.

2. If given in proper dose, the effect of calomel becomes evident in two to ten days. Continuance of the treatment during the diuresis will not alter or increase the effect.

3. Its action is most marked in dropsies due to heart disease. Its action in dropsies of hepatic origin is not to be relied upon. Pathological changes in the kidney prevent or abridge its action.

4. Small doses will prove of no avail.

5. The diuretic action may, in all probability, be ascribed to the irritating effect which the mercury, during its elimination, exercises upon the renal epithelium.

FURTHER OBSERVATIONS UPON FOOT-AND-MOUTH DISEASE IN ITS RELATION TO HUMAN SCARLATINA AS A PROPHYLACTIC.

Read in the Section of Diseases of Children at the Forty-first Annual Meeting of the American Medical Association, at Nashville, Tenn., May, 1890.

BY J. W. STICKLER, M.S., M.D.,
OF ORANGE, N. J.

On December 1, 1887, a paper upon the above subject was read in the presence of, and discussed by, the New York Academy of Medicine. Since that time I have obtained from Dr. M. K. Robinson, of Dover, England, additional statistics which he has secured for me at considerable personal inconvenience, and which are, I think, of sufficient interest, to quote in connection with what has already appeared in relation to the matter under consideration.

First, let me review enough of my former paper, to present clearly the subject as we are now to consider it.

During the early days of February, 1884, a remarkable outbreak of sore throat occurred in Dover, England, which was due to the drinking of milk obtained from cows affected with foot-and-mouth disease. During the week ending February 9, 205 persons were attacked with the disease. "The majority of persons who suffered during the Dover epidemic presented two prominent symptoms in common, viz., inflammatory sore throat and enlargement of the lymphatic glands," but the lesions produced varied considerably in different cases. The vesicular eruptions were followed either by a raw red, oedematous appearance of the mucous membrane, or white patches, and the ulcers which supervened, assumed in many instances a chronic character, with thick puckered edges, and were a long time in healing.

When the inflammation of the tonsils went on to suppuration, recovery was much slower than after common quinsy, and the enlarged cervical glands remained tender, red, and swollen, long after the throat symptoms had subsided, *resembling, in this respect, the sequelæ of scarlet fever.* (I am quoting now from Dr. Robinson's original paper on the Dover Epidemic). Erysipelas and purulent formations were concomitants, also, of the epidemic. "In some instances the feet of those who suffered, were swollen and painful, simulating rheumatism.

"A fatal termination resulted in the cases of two children, who had very bad throats and mouths, with the extension of the disease, in one case, to the respiratory tract, their deaths being, in the opinion of the medical attendant, due to the poisonous effects of the milk." "Two persons who labored under chronic kidney disease, were respectively attacked with sore throats and died on the same day; other people in the

same houses suffering, also, from the 'epidemic sore throat.'" "A servant girl was attacked on February 4, with sore throat and pain in the limbs, complained on the 8th of great pain in the epigastric region, and dyspnœa. There was a purple-red patch on the left cheek, extending to the nose. At 3 P.M. on the 9th, she passed into a state of coma, and died at 4 P.M." "Mr. Wood says this was an obscure case, but thinks it possible that it was one of blood poisoning. Being in England, in 1886, to investigate this unusual epidemic of sore throat, and wishing, if possible, to learn what relation, if any, it bore to scarlatina, I went to Dover to consult with Dr. M. K. Robinson. He received me very kindly, and said he would go with me to the various homes where the disease had existed, that we might gain the desired information."

The following facts were elicited:

1. That members of eight different families who had previously had scarlet fever, escaped the "throat epidemic" while all the other members contracted the disease, all alike having partaken freely of milk infected with the contagium of "foot-and-mouth disease." The number of those who escaped was 23+. I say plus 23, because in the case of one family, we were told that the father, mother and servants escaped, the number of servants not being stated. Allowing the number of servants to be two, the whole number would be twenty-five.

2. That of 183 persons who had the "throat epidemic," sixteen had had scarlet fever.

3. That four of the sixteen persons who had had scarlet fever, had a *mild form* of the "throat epidemic."

4. That two of the affected individuals had scarlatina *when young*.

5. That *none* of the persons affected with the "throat epidemic," had contracted scarlet fever from natural, accidental exposure, between the time of having the "sore throat" and the date of my visit (1886).

At this point, and in close connection with what has just been stated, let me quote *in extenso* the paper recently received from Dr. Robinson, the one alluded to in the first few lines of this article. It is as follows:

Dear Dr. Stickler:—I have at last been able to complete the further inquiry which you asked me to make, and beg to furnish you with the information sought for, which you may consider more complete than my previous communication to you upon the subject. The following summary has been compiled from statistics containing all the information procurable, concerning the epidemic of 1884:

Number of cases of foot-and-mouth disease which came under observation during an epidemic of this disease, at Dover, Eng., in 1884	205
Number of persons attacked who had previously suffered from scarlet fever	23
Number of persons attacked, who had <i>not</i> previously suffered from scarlet fever	161

Number of persons who, having had scarlet fever and imbibed infected milk, *escaped* foot-and-mouth disease 36¹
 Number of persons who had foot-and-mouth disease in 1884, since exposed to scarlet fever without contracting the disease 14

With regard to the prevalence of the disease in Great Britain, it does not appear to have been worthy of recognition in our official nomenclature of diseases, and it has escaped notice by the leading authors of our text-books on medicine. When my interest in this disease, as developed in the human subject, was aroused, I had to resort to veterinary practitioners and veterinary works, in order to obtain descriptions of the symptoms, and history of the malady. I am not surprised, therefore, that Sir James Paget should write to you, to the effect that he was not aware of the existence of the disease, when it fails to find a place in British nomenclature and teaching. It is now twenty years ago, when Medical Officer of Health for the Borough of Leeds, that a distinct epidemic of this disease came under my notice. It was confined chiefly to children who had partaken of milk from cows suffering from this disease, and the symptoms in the human subject were most characteristic. Since that time *limited* outbreaks have, from time to time come under my observation, which, although clear to my mind as to their nature and origin, were *limited in point of number of cases on each occasion*.

Then came the sudden and wide-spread diffusion of the disease in Dover, which, with considerable labor I was able to trace so clearly to its source, that I felt it my duty to bring the matter before the medical profession, and place on record, the facts then elicited.

When the history of this last mentioned epidemic obtained notoriety from its publication in the daily papers, I had many communications on the subject, from persons who had evidently sustained practical experience of the disease, but the nature of which had escaped recognition at the hands of medical practitioners. Thus, Captain Reid, of Backsford House, Ashford, says in a letter to me, "some few years ago whilst staying at a fashionable watering place, my children were poisoned from milk, which I ascertained for certain, was derived from a cow suffering from foot-and-mouth disease. I at once recognized the disease, because on a previous occasion five of my household had suffered from drinking the milk of a cow belonging to myself which was afflicted with the disease."

Another gentleman told me that being thirsty, he went into his cowshed and drank off a glass of milk just yielded from one of his cows, which he found afterwards was ill at the time, and subsequently pronounced by the veterinary surgeon, to be suffering from foot-and-mouth disease. This gentleman was attacked with bad mouth and throat.

Another gentleman said: "When my cows suffered from the disease, my man along with his wife and family, would persist in drinking the milk from the diseased animals, and they were all attacked with the malady. The Messrs. Crowhursts, veterinary surgeons, wrote me, saying that when attending upon animals suffering from foot-and-mouth disease, the attendants upon such animals had often complained of the same symptoms which were exhibited by the animals in question, etc.

The disease as it occurs in animals, has been variously described as eczema, epizootic, apthous fever, epizootic apthous and murrain, and is characterized by fever and a vesicular eruption in the cleft of the hoofs, or in the month, with extension into the throat and nostrils. Shivering, and a ropy discharge from the nose are often noticed at the onset of the attack. When the vesicles are ruptured, ulcers form, or red spots, bare of epithelium, appear with the characteristic soreness which ensues.

¹ This number includes persons other than families in which the disease broke out, but who obtained the same milk supply.

The incubation period varies, but animals have been known to suffer twenty-four hours after exposure to infection. Various complications occur, and erysipelas and pyæmia have been known to supervene.

The following characteristics were noticed in the human epidemic which occurred at Dover: Shivering, followed by headache and fever, pains in the limbs, thirst, parched lips and a vesicular eruption on the throat and mouth. A common accompaniment was enlarged cervical glands; many had enlarged tonsils. In some instances, proceeding to suppuration.

In the *Veterinary Review*, Vol. IV, p. 502, and Vol. V, p. 187, will be found some evidence furnished by Dr. Balfour and Mr. H. Watson, on the transmission of foot-and-mouth disease by milk to man, and in the same periodical (Vol. V, p. 81) Mr. Hislop records some instances of human beings taking the disease by inoculation. Parkes in his "Practical Hygiene," says: "There has been much discussion whether the milk from cows with foot-and-mouth disease causes affections of the mouth, etc., in human beings. There are some striking cases which seem sufficient to prove that diseases of the mouth, apthous ulceration, general redness, diphtheritic-like coating, and swollen tongue occur. In the proceedings of the Royal Society for 1881, a new form of febrile disease is described by Dr. Ewart, the propagating agent being milk from a dairy near Aberdeen.

Gamgee, the eminent veterinary surgeon, says that the disease is communicable to man, as the history of the various outbreaks of the disease undoubtedly prove. I have referred in detail to the above mentioned symptoms as observed by reliable narrators, because I am satisfied that many *ill-defined throat affections* are due to bovine sources.

During epizootic epidemics, I have, again and again, noticed the concomitant prevalence of apthous affections and diphtheritic-like appearances, described often under the heads of follicular stomatitis and follicular tonsillitis.

Dr. C. Fox described a peculiar epidemic, characterized by inflammation of the tonsils, extending into the pharynx, and sometimes to submaxillary and cervical glands, and accompanied by yellowish patches on the throat.

This outbreak occurred in October and November, 1875, in a parish which differed from its neighbors in this, that the inhabitants were supplied with water from a stream polluted at various parts of its course by the drainage of farm yards, the inference being, that the specific poison was derived from the infected excretions of cattle.

That some intimate relationship exists between scarlet fever and diphtheria, appears to be extremely probable, my own view being that diphtheria can be produced by the pabulum on which the scarlet fever poison exists, during the interval between its passage from one human subject to another. I have known instances where diphtheria has broken out at isolated spots in the country, when, after diligent search, no exposure to any previous case of diphtheria could be traced, but where I know that scarlet fever had previously occurred, and that those who suffered from diphtheria had been exposed to exhalations from scarlet fever infected excretions.

Again, it is the custom in many parts of England, to cart town refuse and garbage into the country, and there may be witnessed the disgusting spectacle of swine feeding upon the scavenger's motley collection, including as such heaps do, not only decaying vegetable and organic matter, but rags and poultices from hospitals and sick-rooms.

Many times has swine fever (which some maintain is allied to scarlet fever) broken out amongst pigs kept as above described, and I have also noticed that in the same locality, the swine fever has been accompanied by foot-and-mouth disease amongst the cattle, but what is far more important, human beings that have consumed milk

from the infected cattle, have suffered from diphtheritic-like affections of the throat. It is a striking fact, that in certain localities where foot-and-mouth disease has prevailed, there also has been a large development of diphtheria or its congeners.

The cases of foot-and-mouth disease officially reported in England, increased from 37,000 in 1882, to 461,000 in 1883, and following this enormous increase of the epizootic disease, there was a large increase in diphtheria. The number of deaths alone from this disease, in England and Wales during the first quarter of 1884, being 1,270, and the death-rate from the malady higher than that recorded in any quarter of the previous fourteen years. The above observations I have not published, but you are at liberty to make any use of them you think proper. Believe me,

Yours faithfully,

M. K. ROBINSON.

In immediate connection with this letter, and the statistical table already given, let me call your attention to the facts concerning an outbreak of foot-and-mouth disease in Bethersden, England, in 1884. They are as follows in tabulated form, namely :

No. of Cases.	Age.	Scarlet fever previously.	Scarlet fever since.	REMARKS BY DR. M. K. ROBINSON.
1	8	0	0	Members of same family.
2	10	0	0	
3	18	0	0	
4	6	0	0	
5	9	0	0	Same family. Four other members who had previously had scarlet fever escaped epidemic of sore throat.
6	5	0	0	
7	7	1	0	Same family; 7 and 8, mild sore throat, probably modified by previous scarlet fever.
8	9	1	0	
9	9	1	0	Very slight case of scarlet fever last year.
10	8	1	0	
11	2	0	0	Same family.
12	1	0	0	
13	9	1	0	Same family. No. 13, mild case of scarlet fever. No doctor employed.
14	7	0	0	
15	11	0	0	Same family. No. 16, mild case of scarlet fever.
16	9	1	0	
17	2	0	0	Same family. Three other members of this family, who had previously had scarlet fever, escaped throat epidemic.
18	12	0	0	
19	5	0	0	
20	4	0	0	
21	2	0	0	Same family. Case 22, mild throat case.
22	22	1	0	
23	6	0	0	No. 28 said to have been mild; no doctor.
24	7	0	0	
25	7	1	0	
26	8	0	0	
27	6	0	0	No. 29, mild throat case.
28	9	1	0	
29	9	1	0	

We learn from this table,

1. That *two members* of one family who had *not* previously had scarlet fever, developed the foot-and-mouth disease, while *four other members* who had previously had scarlet fever, escaped.

2. That *three members* of another family who had *not* previously had scarlet fever, contracted foot-and-mouth disease, while the *three other members* who had the scarlatina, escaped.

3. That but one person developed scarlatina after having had foot-and-mouth disease, and that attack was very mild.

4. That persons who, having had scarlatina, contracted foot-and-mouth disease, had the latter affection very mildly.

5. That these individuals developed the foot-and-mouth-disease, as a result of exposure to manure derived from cattle affected with aphthous fever.

As supplementary evidence in favor of the prophylactic power of foot-and-mouth disease against scarlatina, I will re-state the facts concerning three children whom I inoculated with the virus of foot-and-mouth disease.

Case 1.—M. M., about eight years of age; had never had scarlet fever. On January 12, 1884, I injected under the skin of his arm, a small quantity of the virus taken from a cow, having a mild attack of foot-and-mouth disease. A short time thereafter, the cervical glands became enlarged and tender to the touch. There was no marked systemic disturbance, neither was there any sore mouth or throat. All signs of glandular enlargement and tenderness had disappeared in six or seven days. He was then taken to a house in which there was a boy sick with scarlet fever. The disease was in the desquamating stage, and the throat still sore. His parents being poor, the pillow upon which the patient lay, had not been exchanged for a clean one since the beginning of the sickness. This pillow was placed upon the face of the boy who had been inoculated, and held there some time. He was then made to inhale the breath of the patient, and afterward to remain sometime in the sick-room. The boy did not develop scarlatina after having been thus exposed, neither has he contracted the disease since, although there has been opportunity for infection.

Case 2.—B. B., aged four years; had never had scarlet fever. On March 6, 1884, I inoculated her in the arm with a small quantity of foot-and-mouth virus. On March 13th the temperature rose to 103° F. Her mouth was sore without showing any vesicles, and she complained of a pricking sensation in her throat. She had slight headache, the appetite was impaired, and she was quite peevish. There was no eruption at any point of the body. By March 20 she was well. She was then taken to a house where I had a patient in the desquamating stage of scarlet fever. The patient was very sick at the time because of complications; indeed, was so ill that I was somewhat doubtful about the issue. The same plan of exposure was adopted as in the first case, except that I could not get the inoculated child quite near enough to the patient to inhale her breath; but the "pillow exposure," and the length of time she remained in the sick room, afforded a good opportunity for infection. She did not subsequently develop scarlet fever.

Case 3.—J. M., aged about ten years. Had never had scarlatina. I inoculated him just as I did the first two. He did not afterwards develop any systemic disturbance or local lesion. After a lapse of three years, with opportunity for infection, he tells me he has not had scarlatina.

These cases taken in connection with the others, suggest gratifying results should further inoculations be made.

In one of my note books I find this entry, namely :

Thursday, August 19, 1886, went with Dr. Robinson to Canterbury, England, where we saw the health inspector, who told us that in one family, the foot-and-mouth disease attacked *only* those members who had *not had scarlet fever*. We found four persons suffering from the epidemic sore throat who had had scarlet fever.

Without commenting now upon what has thus far been stated, I will describe somewhat briefly (quoting Professor Walley), foot-and-mouth disease as it affects animals.

Synonyms.—Murrain; eczema epizoötica; disemper; epizoötic aphtha; vesicula epizoötic; aphthous fever.

Definition.—It is a vesicular eruptive or exanthematous affection, due to a specific ferment, and having lesion localized in the skin and mucous

—Eczema Epizoötica is probably in the bovine tribe only, but no direct proof that it may not be in the ovine species also. It readily attacks sheep, goats, swine and poultry; it is easily transmitted to the human subject, and it has been described as existing in the horse, the wild fowl, deer, wild boar, etc. Walley or nothing is known of the ferment of it. Dr. Klein, of London, says the disease is caused by a micrococcus which forms official media, besides dumb-bells (diplococcus), beautiful chains (streptococcus). These differ in length according to the number of micrococci composing them, the short chains being a linear series of four, six, or eight micrococci, the longer ones, of more than eight up to thirty and more micrococci. The longer chains are always curved, and even convoluted.

In different outbreaks it localizes itself mainly in the feet, the udder, the mouth, the skin and mucous membranes respectively.

One attack does not give immunity from others; and not only may an individual animal suffer several times from it in the course of its life, but even twice or thrice in a season, *though in the great majority of cases each successive attack becomes milder in its character*. Dr. L. McLean, Government veterinary surgeon, says, "*In the bovine species one attack of foot-and-mouth disease does not give immunity from the disease; but in the ovine species it does.*"

The channels by which nature endeavors to eliminate the poison, are the salivary and mammary glands, the mucous glands of the bronchial and intestinal mucous membranes, and the skin.

The effects of the poison on the skin are invariably well marked, *desquamation of the cuticle being extensive*; but while this is a common characteristic of many zymotic diseases, it neverthe-

less points to the necessity of encouraging the elimination of the poison by this channel.

Period of Incubation.—Is, compared with other zymotic affections, short, viz., from twenty-four hours to three weeks. The average is from two or three, or five to six days.

Invasion.—Is, on the whole, rapid and pronounced, the manner of invasion depending upon the amount of poison received into the system, the conditions of the host, and the surrounding circumstances.

Duration.—Is variable, and is regulated by the intensity of the attack, and the care which is bestowed upon the patient. From ten to twenty-one days may be looked upon as the average period of duration where the disease runs a regular course, and is not succeeded by important sequelæ.

Fatality.—Depends largely upon the character of the outbreak; in some seasons death in any animal is rare, while in others, great numbers succumb to the primary effects of the disease.

Propagation.—It is propagated by direct and mediate contagion, as the virus is both fixed and volatile, but it is only diffused through the medium of the atmosphere at comparatively short distances. As the saliva, the nasal, conjunctival, and intestinal mucus are highly charged with the virus, it is most readily spread by the conveyance of these secretions to healthy animals, by many direct and indirect means.

SYMPTOMS AND COURSE.

The symptoms must be divided into general, or constitutional, and local.

The premonitory constitutional symptoms are identical with those of other zymotic diseases. These are—*isolation*, usually very marked; *arched back in cattle*; *tucked up abdomen*; *muscular twitchings or shiverings*, more or less severe; *erection of the hair*, the skin being hot and dry; and *stiffness of gait*, which is most pronounced when the feet—and particularly so if three or the whole—are affected.

Bowels usually a little constipated; urine sometimes scanty, high-colored, and laden with solids, especially as the disease advances; at other times it is profuse and limpid. There may or may not be mucous discharge from the eyes and nose, with increased lachrymal secretion from the former. In young animals, exposed to inclement weather, such discharge is very constant, and in the course of a few days, that from the eyes forms a yellow accretion at the inner canthus of the lids and down the sides of the face, a similar accretion being formed, by the nasal discharges, round the edges of the nostrils.

Under exposure, an irritable bronchitic cough is present, by localization of the lesions in the bronchial mucous membrane.

Temperature always elevated to the extent of

2° or 3° F.; the pulse and respiration may not be much disturbed. Appetite indifferent when invasion is rapid, and the fever high, or the stomach and bowels affected; in ordinary cases, a desire for food is evinced, even though the lesions in the mouth are extensive. In ruminants, rumination is performed naturally, unless the mouth is much affected.

In milch animals, interference with the lacteal secretion will be largely regulated by the localization or non-localization of the lesions in the udder.

As the disease advances, the phenomena above enumerated increase in intensity, and continue to do so until the climax—which may be calculated at from the third to the seventh day—is reached, after which they gradually subside.

In addition, vesicular and pustular eruptions may appear on the skin of different parts of the body; they are most often seen in the pig, and the primary may be succeeded by secondary, and even tertiary crops.

Jaundice is a very frequent concomitant. *Desquamation* of the cuticle is an *invariable accompaniment of convalescence*, the skin being covered with abundant bran-like scales of a yellow color; it is also extremely irritable, animals rubbing against prominent objects vigorously.

If the lesions are localized in the gastro-intestinal mucous membrane, colicky pains are induced.

The local lesions are, so far as the skin is concerned, usually seen in parts devoid of hair, or where it is delicate, as the feet, the mouth, the udder, and in some cases the vagina of the female, and the sheath of the male. In all animals, the earliest pedal sign is lameness—more or less sudden and severe—with uneasy movements of the limbs. In the course of a few hours, subsequently to the advent of the lameness, the vesicular eruptions characteristic of the disease appear. The pedal vesicles are bladder-like elevations, varying in size from a hazel-nut to a walnut. If allowed to remain undisturbed, the vesicles burst in from three to twelve hours, and discharge a limpid, colorless, or pale straw-colored fluid; the jagged edges of the lacerated epidermis become retracted, and slightly everted, and form an irregularly raised white boundary around the margin of the resulting sore. The cutaneous structure which is exposed by the eruption of the vesicle, is of an intensely scarlet color.

The advent of mouth lesions in cattle is marked by smacking of the lips, or rather the mouth; by dribbling of the saliva, and by partial or total inability to masticate. The mouth vesicles vary in size and character, according to the part of the buccal membrane in which they are located. The pad vesicles appear as flattened elevations of the epithelium, without areolæ around their bases. On the tongue, the vesicles are much larger than elsewhere. They vary in number from one to five, and are very resistant. They present much

the same character as on the pad. Two or three may coalesce and form one very large vesicle. On the inside of the cheek, the reddened condition of the mucous membrane is more discernible, and the resistance of the vesicles considerably diminished.

On the lower lip vesication, in ordinary cases, is comparatively infrequent. The vesicles, when they appear, are much smaller. On the skin outside the lips, vesicles are rarely seen. More frequently secondary than primary, are small, and succeeded by pustules and scabs.

In the course of a few days, the epithelium will be so far restored as to form a perfect coating over the inflamed tissues. In the cow, vesicles usually appear a few hours after the premonitory signs of the disease, on the body, and around the apex of the teats, but they may be developed in any part of the udder. At first they are discrete, but frequently become confluent. They vary in size from a three-penny piece upwards. The period of vesication will vary from one to two, to about thirty-six hours, depending upon amount of friction and pressure to which they are exposed.

The exposed epidermis, after rupture of the vesicles, is intensely hyperæmic, but if the parts are undisturbed, it quickly becomes covered by inspissated pus, coagulated lymph, and epidermic cells—the hair, when present, assisting in forming a coherent brown-colored scab, which has usually irregular edges, and varies in thickness.

The substance of the tongue is usually much more flaccid than normal, and if the papillæ are carefully examined, it will be found that, in the earlier stages of vesication, they are much congested, subsequently becoming atrophied and shrivelled. It sometimes happens that when the tongue is seized to explore the mouth, large patches of epidermis come away in the hand, as if the tongue had been boiled. This occurs in the aphthous stage, when the vesicles have ruptured, and, the epidermis being removed, erosions appear. (Fleming.)

Thus far I have simply stated facts, such facts as should receive the most earnest attention of the profession. I make this statement without apology, because I am satisfied that when a disease failed to attack every member of eight different families who had previously had scarlet fever, and attacked every other member who had not had scarlet fever, there was some good reason for it; that reason apparently being, not coincidence, but the protective influence of the one disease against the other.

Further, not only was this true of eight families in Dover, England, but of two families in Bethersden, England.

Again, there were other individuals, who, having had scarlatina, escaped the throat epidemic, and, as already stated, when the "throat epidemic" occurred in those who had had scarlatina, it was mild in character, as far as could be learned,

and in the *one* instance in which scarlatina occurred after the epidemic sore throat, it was a very mild attack. Here again, there must be some reason for the mildness of one disease when appearing after the other in the same individual.

Thomas, in his article on scarlatina, says: "Soon, perhaps, already on the second or third day, the *entire coating of the tongue with the superficial layers, exfoliates, either at once or in successive sections, in a manner found in no other disease.* Now here is a disease (foot-and-mouth disease) in which this *very thing does occur*, as already stated on the authority of Fleming. In both, the *papillæ of the tongue are swollen and prominent.* In both there is *abundant desquamation* of the cuticle. Sometimes in scarlatina ulcers occur upon the tongue, cheeks and gums, as in foot-and-mouth disease. Foot-and-mouth disease frequently attacks cattle more than once; sheep, on the other hand, do not so commonly have a second attack." In the case of scarlatina, Thomas (Ziemssen, Vol. ii, page 186) says: "As a general fact, it cannot be disputed that scarlatina belongs to that class of diseases which occur but once; nevertheless, exceptions appear to be of comparatively frequent occurrence." He then says he collected, in the literature to which he had access, *about two hundred cases of a second infection*, besides a few reports of a *third and fourth infection in the same individual.* Murchison observed relapses of scarlatina in two sisters. Trojanowsky says "in two of his cases of secondary scarlatina, both parents had also the disease twice, and in a third case, the father had been affected twice." Richardson states that he has experienced scarlatina *in his own person three times.* Sir Robert Gillespie tells of a young lady who had scarlatina *three times*, the diagnosis of which was unequivocal. (Ziemssen, Vol. ii, p. 191.) Henrici, during the epidemic of scarlatina in Kiel, from 1797 to 1798, attended a woman who was then undergoing her *seventeenth* attack of scarlatina with all its symptoms. (Ziemssen, Vol. ii, p. 192.) The latter statement may be exaggerated. Dr. Edward J. Ill, of Newark, N. J., writes me as follows concerning some of his own patients: "One of my patients, 6 years old, had an attack of scarlatina in 1881. In 1883 she had another attack. In January, 1887, a *third* attack. In 1888 she had a *fourth* attack. Desquamation followed in each instance."

Another case, "J. G., æt. 12 years, had scarlatina in 1888—had a prior attack in 1881."

The tender to suppuration of the tonsils, and the continued enlargement of the cervical glands, in persons who had the foot-and-mouth disease, suggested a resemblance of the two diseases: scarlatina and foot-and-mouth disease.

A consideration of the above, inclines one to the opinion that the two diseases under consideration, may be more closely allied to one another

than has heretofore been supposed to be true, and that it is probable that an individual who has had one disease, either will not contract the other on exposure, or will have it in a very modified form, if he contract it. Dr. Robinson, in a personal letter to me, says: "As to the prophylactic power of one disease against the other, my own view is, that if persons who have had one disease, and are exposed to the other, suffer from the alternate one, they do so in a mild form. If there is some intimate relation between the two maladies, it is fair, I think, to assume that persons who have suffered from one form, are less susceptible to the other. I do not think I mentioned in my former communications, as evidence of the relation of the two diseases, that in the County of Norfolk, during a period of great prevalence of foot-and-mouth disease amongst cattle in 1883, *there was a great increase of scarlet fever*, and especially a *scarlatinal sort of sore throat.* This fact was stated in the House of Commons, during a discussion of the Contagious Diseases (Animals) Bill, on March 18, 1884, and reported in the daily papers the following day." Professor Law said, in discussing my former paper, "Epizootic foot-and-mouth disease had at times attacked *nearly all the cattle and the people of Great Britain*, and considering the fact that the disease was so prevalent, there should be less scarlet fever in Great Britain than in America, where the foot-and-mouth disease is comparatively unknown."

Sir James Paget, in a letter to me upon this point, says: "I have not seen or heard of foot-and-mouth disease communicated to persons in this country. I have asked some of those likely to have known of such cases if they had occurred, but I have learned nothing from them."

Prof. Thomas Walley, of the Royal Dick's Veterinary College, Edinburgh, Scotland, says in a communication to me: "Very few people contract eczema" (foot-and-mouth disease). Prof. E. Klein, in speaking upon the same matter, says:

My Dear Sir:—In answer to your letter of October 29, 1889, as to whether many of the people of Great Britain have had foot-and-mouth disease, I must say that during the nineteen years that I have resided in this country, I have heard of some outbreaks of foot-and-mouth disease amongst the people in various localities, but they were always *localized, and did not involve many cases.* I must say that I have never been more surprised than when you told me, in your letter, that Prof. Law offered the remark, that *many persons in England have had foot-and-mouth disease.* As a *matter of fact*, the contrary is the case. During the last four or five years, I have not heard of any appreciable amount of foot-and-mouth disease; in fact, I do not think there has been any epidemic of it. I have made inquiries of several friends in the country, and I hear from them that many practitioners have never seen a case in the human—in fact, some, in practice during the last four years, did not know it to have occurred in a single instance in their districts. Only a few weeks back, I had a class in bacteriology in which were twelve gentlemen, in practice as health officers in various parts of England. Every one of them to whom I put your question, laughed at the idea that foot-and-mouth disease is alleged to be a common disease in man in this country.

These gentlemen evidently do not agree with Prof. Law upon the above point. Even if we assume that the disease is more common than it is supposed to be, such *facts* as are set forth in this paper concerning it, in its relation to scarlatina, have never been noticed or commented upon, and to my mind are not affected by the statement that scarlatina is very prevalent in Great Britain. Dr. J. Lewis Smith said, in discussing my former paper: "Since the time of Jenner, the hope has been awakened, that some of the other fatal infectious diseases, and especially scarlet fever, might be prevented, as small-pox has been, by the inoculation of a milder and modified disease derived from the lower animals." Now let me ask my professional brothers, in a spirit of perfect candor and honest inquiry, if in the evidence furnished by the epidemics in England, the *facts* concerning which are herein quoted, we have not a fairly secure basis upon which to build the hope, that scarlatina may be either prevented or modified, by introducing into the human system properly prepared and attenuated foot-and-mouth disease virus. Let me also ask if enough cases have not been quoted; a sufficient number of experiments performed; and the ultimate results of sufficient importance, to warrant a more extended trial being made of this proposed method of preventing the development of, or modifying, one of our most fatal and dreaded diseases? No theoretical objection, however adroit and well planned, can settle the question before us; further actual experience with the diseases in their clinical and apparently prophylactic relations to each other must be had, before any one can positively deny, or prove to be true that which *seems to be a fact*, namely, that *scarlatina* and foot-and-mouth disease are mutually protective.

Suppose some drug had been administered to certain members of eight families in Dover, England, prior to the appearance of the "throat epidemic," and that when the families were exposed to the contagium of the epidemic disease, only those who had taken the drug escaped, while every other member contracted the disease. Do you not think that drug would have a new interest, and be given a fair trial, in order to determine beyond dispute whether it would, in the majority of cases, exercise this preventive influence. Now, why not, instead of saying, How can this be true? or, This cannot possibly be realized—give the proposed method a fair, honest trial, just as you would give the drug a fair trial, or just as Jenner gave his method a trial, and then be guided in the future by the results. Suppose a certain number of children, in a children's hospital for the treatment of contagious diseases, were inoculated with a modified virus of foot-and-mouth disease, and after recovery from the effects of such treatment, should be put into a ward with scarlatinal patients, and allowed to remain sufficiently long

to be thoroughly exposed to the contagium of the disease, would not that be a fair way to settle the question? What I wish, is simply to determine positively, and as soon as possible, whether the escape from the "throat epidemic" of certain individuals, in the two epidemics in England, and of the three children from scarlatina whom I inoculated with the virus of foot-and-mouth disease, be due to the protective influence of the one disease against the other, as appears to be the case. If we learn that we may thus prevent the development of a disease so common, oft-times so fatal, and so frequently followed by distressing sequelæ, will we not confer a blessing upon those who are susceptible to its contagium? If, on the other hand, we discover that we cannot, in the majority of instances, confer this immunity, we shall at least have made a commendable effort to realize that which a large number of clinical facts seemed to indicate as possible of accomplishment.

CHATTANOOGA AS A HEALTH RESORT.

Read in the Section of State Medicine at the Forty-first Annual Meeting of the American Medical Association, Nashville, Tenn., May 21, 1890.

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It has been said, "Earth has no sorrow that Heaven can not heal." It may be quite true, and may be otherwise. In a medical way it is prognostic rather than diagnostic. We prefer to admit it, but it does not fully satisfy. Most persons continue to seek relief in this life. The afflicted appeal to us now as ever before, and will hereafter till the causes be removed. The world is full of victims, and it is said not less than several thousand years ago, they are with us always, those with too much poverty, as also too much wealth. The consumptive, the strumous, the cachectic of wide degree, all ask to be cured *now*. The vast majority of invalids are so surrounded, and have such maladies, that they are best attended to in hospitals, or their own homes. There are, however, few practitioners who do not have some patients who would flourish best under different hygienic conditions, and are so circumstanced that they can afford to undertake a climatic change. It is in the interest of such that the following suggestions are addressed.

Chattanooga, that pushing, enterprising and plucky city of this genial Southland, numbering now her 50,000 souls, is situated on the southern bank of the Tennessee river, on the extreme southeastern border of the State. Surrounded by mountains and ridges on every side—Lookout Mountain, that grand old mountain, which stands there silent and glorious, like the Egyptian Sphinx, with its many secrets, witnessing the evolutions and translations that have, are and

will be made; Walden Ridge, whose brow is said never to have been furrowed by a case of consumption; Missionary Ridge, rendered historic by means of its many desperate and bloody battles;—Chattanooga, I say, stands as the centre of the New South with her many manufacturing interests, with her cosmopolitan population, and her hills and lands in the near vicinity filled with coal and iron in inexhaustible quantities, and the necessities of life within reach of him who will but stretch forth his hand. An adopted citizen who lives here because he shares her adversity and prosperity, her climate, and loves her people, applauds this city and gives his views as to her health and invigorating climate, and the health resorts all around her borders.

One of the most important points in favor of a spot as a health resort is its accessibility, and, indeed, what more could you wish than is shown in Chattanooga? Extensive systems of railroads, that reach out to all points of the compass; one may come from the North, East, West, or South. A visitor procuring for himself a sleeping-car berth at his former home reaches this city in a few hours' travel with the minimum of inconvenience; and once in the city, he may go by rail to any of the mountain tops that I have mentioned, in a few moments' time.

Lookout has its cable incline and its standard gauge steam railway, each having just completed large and magnificent hotels at its terminus.

Missionary Ridge, dotted with its many handsome residences, is reached by an electric railway, cars leaving the centre of the city every few minutes. Walden's Ridge, across the river, which is now being spanned by massive iron bridges, is surveyed for electric and steam railways, requiring less than an hour to reach its broad plateau.

From these conditions you will see the city has within easy reach plenty of elevations, cool and exceptionally healthy, to which its people can go in all seasons. On the plateau many of the citizens now have summer cottages, some who take boarders, and hotels are convenient, well equipped and plenty; and in these various houses all the luxuries and comforts that the invalid may require are to be had at fair and moderate charges.

The scenery in and around Chattanooga is ever varying and beautiful. The air is exhilarating and invigorating to those who need and desire it. There is ample opportunity for mountain climbing, with all its resultant benefits: expanding the chest, exciting respiration, increasing muscular vigor, and sending the blood bounding through the capillaries, giving tone to the system, firmness to the flesh, and health to the invalid; and to those who are not so afflicted, making the weak strong, and the strong robust.

Boating excursions up and down the Tennessee river may be, and are often, indulged in, giving a change of beautiful and attractive scenery equal

to, and in many respects surpassing, that along the Hudson and the Rhine, except as to the historic interest in the one, and ruined castles in the other, both of which I have seen.

Suitable climate is a paramount necessity for invalids, but the accessory advantages of social surroundings are quite as important; in order to obtain the maximum benefit of climatic influences, mental repose and pleasant companions are indispensable. Many an invalid who leaves home and friends to regain, at some distant resort, the health which is denied him among those who are dear to him, finds himself among strangers, from whom he fails to derive the sympathy and attention that his state of health requires; he becomes despondent, and returns home unbenefited and blaming the resort for his unimproved condition. To those who are unable to be accompanied by friends or relatives in their search for health, the hospitality and social temperament which pervades this cosmopolitan Chattanooga district generally will go very far to relieve the sense of loneliness and consequent yearning after home that oppresses the mind and retards physical exercise and recuperation in most of the hygienic and sanatory resorts.

The purification of the atmosphere, and the oft repeated renewal of the tonic and electric conditions, are processes constantly impressed upon the mind of the inquirer into high altitude effects, whether he explains it on the theory that the mountains are constantly giving off the electrical force engendered nearer the center of the earth, or whether he sees in the positive electric state of the dry air the facility in the mountains for an easy interchange between this and the negative electric state of the ground.

We find, too, that the therapeutic conditions of the dryness and atmospheric rarefaction affect him in proportion to the elevation of his abode above the sea-level and above the underlying lands.

And here in Chattanooga do we find these conditions well exemplified. The city, which is protected on all sides, lies in a basin with an elevation of 640 feet above the sea-level. The highest point of Lookout Mountain is 1,780 feet above the river, and Walden's Ridge is about 1,000 feet, and Missionary Ridge 490 feet, giving, you see, complete protection to the city on all sides.

The city is subject to very little cold, as compared with others of similar size in our neighborhood, for instance Memphis, Nashville and Birmingham. These cities have no mountains which ward off the winds, and when they blow over the country these various places feel the chilling effects, while in Chattanooga we have only a moderate fall of temperature—enough to let us know that a cold wave is passing over the country.

The observations as given by the U. S. Signal

Service show that the lowest temperature generally occurs in Chattanooga about January 1 to 12, and the highest in July. The average temperature for each day in the year is 59.7°; at Toledo, 50.5°; Albany, 48.4°; San Antonio, Texas, 69°. This last station is considered by the U. S. Government as the healthiest place in the States, but the official records show it to be 9° warmer than Chattanooga. A lower mean annual temperature can be obtained from any of the mountain tops in the vicinity of Chattanooga, the temperature between the city and Lookout Mountain being 8°. The mean annual range of temperature for this city is 18°, while for the cities mentioned above it is from 20° to 16°. The highest temperature for Chattanooga is 101° in July, 1879, the lowest temperature on January 11, 1886, 7°, showing a range in nine years of 91.7°; in San Antonio the highest (1880) showing a range of 98°.

Now, if we take the city of Nashville we find the official records show that the highest temperature recorded in twelve years was 104° in 1874, and the lowest 10.2° below zero in 1884, giving a range of 114.2°, or a range of 22.5° greater than at Chattanooga.

An item of practical importance is the dew-point, since it shows the point near which the descent of the temperature of the air during the night will be arrested; for when the air has been cooled down by radiation to this point, dew is deposited and latent heat is set free. The amount of heat thus freed being great, the temperature of the air is raised; but as the cooling by radiation proceeds, the air again falls to a little under the dew point; dew is again deposited, heat liberated, and the temperature raised. Thus we can determine the dew point and the minimum temperature.

The relative average annual humidity of Chattanooga is 71 per cent., Cincinnati 67.7 per cent., Bismarck 82.8 per cent., Nashville 71.1 per cent.

The average annual number of clear days in this district is 117, fair 147, cloudy 101, giving a number in favor of Chattanooga, as compared with the above mentioned cities, ranging from sixteen to twenty-one days.

Now, gentlemen, you will see from the facts and figures here stated that Chattanooga is well located and sufficiently elevated and varied in its scenic attractions, and is destined to become one of the most renowned of health resorts. Allow me to close this section on climate by quoting the words of a Northern physician, made in a public speech some time since:

"Who among us is not mindful of the rich delights of our usual March climate? March, that month of terror in other latitudes, brings us the blossoms of Spring in rich profusion, the working days in our gardens and flower-beds, and gives us a noonday warmth of 80°, while the coolness

of night rarely causes the mercury to fall to 40°. April follows with its luxuriant wealth of flowers in field, forest and lawn; the rich and varied verdure of the mountain slopes; the grand picnic days; the profusion of blossoming laurel and azalea; the time when we feel most the exhilaration of a tonic atmosphere, and youth comes again to age. And then follows May; beautiful, beautiful, glorious May! Who can describe an East Tennessee May in any other way than by exclamations? May flowers? No, indeed; we squander those in March. We hurry past our roses of the commoner sorts in April, and come into realization of the complete bliss of living in the real native land of the continual blossoming rose in the early days of May, when the black boys peddle young mocking-birds through the streets, and the luscious red strawberries come, so sweet, so plenty, and so welcome. And then comes June; young summer, older than May, wiser, larger, fuller, and bringing the first harvests of ripened grain; holding in its provident lap the most liberal bestowals of the Almighty in rewards for the labors of man, with a great bonus of earth's spontaneous fruits.

"Can a better summer resort be pictured? If consumptives want altitude and mild climate together, and upon that all authorities agree, it is to be found here. These mountains are so common to us, who use them for daily, weekly and monthly convenience in the summer days, a sleeping place away from the dust and mosquitoes, as well as cooler home quarters, that we have no just appreciation of them; but the mountains of East Tennessee are destined to occupy a high place in the public estimation, in future, as a living-place for invalids."

Now, more than three years ago Chattanooga had one mile of brick sewer, with no paved street. The garbage and refuse matter was thrown into the streets and alleys, and had a death-rate of twenty-two to the thousand population per annum. At the present time she has over fifteen miles of main and lateral sewers made of brick and clay pipe ranging from 12 to 15 inches in diameter. Since the sewers were well started and the work of the health officer, with his corps of scavengers, was duly organized, the death-rate of the city has steadily decreased until it now stands in the winter months at 8 per 1,000, with 62 per 1,000 per year for both races; but you must remember, gentlemen, that this number is greatly increased by those who meet with violent deaths from whatsoever cause, and by those who come here from other places nearly dead of their disease, and by those who are shipped here for interment.

The following table shows you the comparative mortuary reports for November, 1889:

Chattanooga	12	per 1,000 per annum.
Knoxville	13.44	" "

Nashville	14.45	per 1,000 per annum.
Memphis	22.04	" "
Chattanooga, April, 1890 . . .	12.6	" "

If our population were entirely white, the rate would run in ordinary years below 8.5 or 9 per 1,000.

This last topic is the most important one, and in it I wish to present to your minds the great freedom from many of the diseases that human beings are heir to, and show the method that may be adopted in the healing of the affections that we have to contend with.

Until the last three years Chattanooga was regarded as a hot-bed of malaria, but the greatly improved sanitary condition of the city has removed this element to a very great extent, and in a fair practice in and about the city I have seen but one case of malaria, though a number of cases have come under my notice who live in the other towns and cities west and south of us. For instance, Miss S., whose home is in Middle Georgia, came to Chattanooga in December, 1889, suffering from malarial fever, having chills every day. This had been her condition for nearly five months past. Under the influence of quinine, calomel and arsenic, in three weeks' time was entirely relieved, and now has gained 37 pounds in flesh.

The various acute infectious diseases exist here only in a limited number and degree, as shown in the official report of December, 1889, for the preceding year: Number of deaths from typhoid fever, 19; scarlatina, 1; measles, 2; diphtheria, 2; dysentery and diarrhoea, 51; whooping-cough, 1.

The increased number of diarrhoeal troubles is among those who have recently come to the city, and being invigorated by the delightful change of air, indulge too much in the delicious viands and drinks of the table.

It has been my pleasure to witness patients suffering with catarrhal conditions of the respiratory tract derive the utmost benefit from a prolonged stay in this latitude, and many greatly improved by a month's or more visit to friends and relatives in Chattanooga.

The condition which is aided most, and in a large proportion of the cases cured by treatment here, is pulmonary consumption. Allow me, gentlemen, to tell you two cases that have been absolutely cured of their troubles, and the manner in which it was accomplished.

Case 1.—Dr. W. A. Dietrich, of Indiana, began coughing in the spring of 1888. His cough grew gradually worse, yet he paid no attention to it until August, when he had an attack of hæmoptysis. He expectorated blood constantly for one week, and then went to Chicago to consult Dr. J. P. Ross, of the Rush Medical College, who diagnosed it as phthisis with a tubercular deposit in the superior and middle lobes of the right lung. Dr. Ross advised him to go to Lookout Mountain.

Dr. D. then returned to his home in Indiana, and during the following four weeks he had several slight hæmorrhages, a severe cough, night-sweats, anorexia, and a rapid loss in weight and strength, he having lost 25 pounds in weight since he first began coughing. The latter part of September he left Indiana for Lookout Mountain, but first went to Chicago to again consult Dr. Ross, who said the deposit was increasing in size. Shortly after reaching the mountain his cough began to decrease, expectorations became less, appetite increased, night-sweats ceased, and he rapidly gained in health and strength, until now there is not a trace of tubercular trouble to be detected in his lungs, and he weighs more than he ever did in the North. The doctor now enjoys the best of health, and has made Lookout Mountain his permanent home, where he anticipates opening a sanitarium for the benefit of those afflicted as he was.

Case 2.—Mr. J. J. Heelan, of Chicago, began coughing in November, 1886, became hoarse a few weeks afterwards, and by the second week in December was so hoarse that he could not speak above a whisper. At that time he had a severe cough, with night-sweats, anorexia, and considerable emaciation. He consulted numerous physicians, who diagnosed it as tubercular phthisis. He received no benefit from their treatment, and by the second week in January, 1887, was confined to his bed, where he remained two weeks. Was then examined by Dr. Ross, who said he could not live six weeks longer if he remained in Chicago. The doctor advised him to go to Lookout Mountain, but instead of going direct to the mountain he went to Massachusetts and remained one month, and arrived on Lookout the 17th of March, 1887. The same day that he arrived Dr. Ross again examined him, and said that he not only had tubercular deposits scattered all through his left lung, but also had them in the right, and that he (the doctor) could not give him as much encouragement as when he left Chicago. The doctor told him to try the climate one month and see whether it would benefit him. When the month was up he noticed a slight improvement and concluded to remain. The following July Dr. Ross again examined his lungs and found the deposits in his left lung clearing away, with a very noticeable improvement in his general appearance. In the fall he underwent another examination by the doctor, who said that the deposits in his left lung had almost cleared up, with some improvement in the right lung. In March, 1888, just one year after coming to the mountain, the doctor again examined him and found both lungs clear, with the exception of a slight deposit about the size of a quarter in the apex of the right lung. In September, 1888, the doctor again visited the mountain and examined his lungs, and told him that it would take an expert to tell

whether he had ever had any pulmonary disease. He has coughed none since 1888, and at present there is no trace of the former tubercular trouble.

I wish to state that in these two cases the treatment was as follows: A tonic of iron and quinine, inflation of lungs, while in-doors, by muscular effort, daily walks to various points of interest on the mountain and ridges, and to the city when necessary, carrying luncheon with them, regardless of the weather, unless extremely inclement, always clothing themselves suitably to the season.

Should any of my hearers have the *Medical News* of Sept. 28, 1889, I should be glad to have you read the article by Dr. H. I. Bowditch on "Open Air Travel as a Cure of Consumption," in corroboration of the above treatment.

Thanking you for your patient indulgence, I will close with this brief summary: Chattanooga as a health resort presents herself as a place with a pleasant historic interest.

A city easily accessible from all parts of the Union, with a varied and extensive change of scenery; with climatic conditions, all told, unsurpassed by any point in this country.

In comparison with her neighboring cities, her death-rate is the smallest, and her sanitary and sanatory conditions greatly increasing.

And, finally, the variety of diseases is limited, they can be well treated, and with the most gratifying success in the vast majority of cases.

Rooms 133-4 Richardson Building.

PROSTATITIS AND PROSTATIC ABSCESS.

Read by Title in the *Seventy-first Annual* ..

Anatomy at the Forty-first Medical Association, .., 1890.

BY RICHARD H. HARTE, M.D.,

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In entering upon a study of certain pathological conditions of the prostate, there appears to exist a peculiar necessity for observing accurately its normal structure, conformation and anatomical relations with the rectum and the bladder on one hand and the urethra on the other.

The prostate is commonly said to resemble a horse chestnut somewhat in shape and size, the small extremity being directed downwards and forward, and the base upwards and backwards, in the erect position of the body. The upper surface is directed forward to the deep perineal fascia which it touches.

The base is smooth and rests on the rectum, to which it is connected by dense areolar fibrous tissue. When the prostate is thoroughly isolated from the surrounding parts by dissection, it presents something the shape of a truncated cone. The normal adult gland measures about one and

one-half inches in its transverse diameter and its base, an inch antero-posteriorly, and three-quarters of an inch in depth. Weight about five drachms, and is held in position by the two anterior ligaments of the bladder and by the posterior layer of the deep perineal fascia which invests the beginning of the membranous portion of the urethra and prostate gland, and by the anterior portion of the levator ani muscle which passes down from the side of the pubic symphysis and the anterior ligament of the bladder.

The prostate is usually regarded as consisting of three lobes, two lateral which are symmetrical, and a middle or third lobe between them and behind the urethra. It was first spoken of by Sir E. Home, although its existence was well recognized by Morgagni, John Hunter, and others. This so-called third lobe is not always constant. Sir Henry Thompson considers it rather more of an abnormal condition when found in persons under 50 years of age; and he regards it as due to an hypertrophy of the large amount of glandular tissue which exists in this portion of the prostate.

Commencing at the neck of the bladder the urethra continues through the prostate downwards and slightly forwards, the larger portions of the gland lying on either side, and about one-third above and two thirds below the urethra. The vesical boundary of the prostatic urethra is the uvula vesicæ, seen as a slightly rounded prominence on the floor of the bladder. In front of this may be observed twenty to thirty small openings—the mouths of the prostatic ducts—which can be seen with a small magnifying glass, and are usually arranged on either side of the verumontanum. The length of the prostatic urethra varies from one and one-eighth to one and one-fourth inches. The utricle (vesicæ prostatica), the supposed analogue of the uterus, is a small sac opening on the anterior portion of the verumontanum, oval in shape, lined with mucous membrane which sometimes secretes a dark, reddish-brown jelly-like material. The common ejaculatory duct formed by the junction of the vesicula seminalis and vas deferens internus with its fellow of the opposite side at the base of the prostate, about three to four lines below the opening which transmits the urethra.

The prostate is inclosed in a thin but firm fibrous capsule distinct from that derived from the posterior layer of the deep perineal fascia, and separated from it by a plexus of veins. (Gray). The prostate is composed of glandular and muscular substance. The muscular substance, according to Kölliker, constitutes the proper stroma of the prostate, the connective tissue being very scanty, and simply forming the trabeculae between the muscular fibres in which the blood-vessels and nerves of the gland ramify.

The urethral or anterior portion is largely supplied with muscular tissue; whereas the posterior or vesical portion contains more of the glandular structure. The prostate is usually classified with the multilocular or compound racemose glands of which the salivary or pancreatic are types. The prostatic ducts open into the urethra on either side of the verumontanum. The function of this glandular structure appears to be to secrete a fluid not unlike milk and water in character, known as the liquor prostaticus, slightly acid in reaction, and under the microscope seen to consist of a large quantity of pavement and cylindrical epithelial cells. Its use is not definitely known, but it is supposed by some to assist in diluting the spermatic fluid in order to enable its reaching and impregnating the ovum in the vagina. (Hodgson.) The glands of Cowper, and the follicles of the urethra undoubtedly assist in this diluting process.

The arterial supply of the prostate is derived from the internal, pudic, vesical, and hæmorrhoidal arteries. The veins form a plexus around the base and sides of the prostate, and receive in front the dorsal vein of the penis, terminating in the internal iliac vein. The nerve supply is derived from the hypogastric plexus. The tissues to be encountered in an incision in the median line going from without into the prostate are: 1, the skin; 2, superficial fascia, with its superficial and deep layers; 3, fibres of the accelerator urinæ muscle; 4, deep perineal fascia; 5, levator ani muscle; 6, capsule of the gland.

This now brings us to consider two conditions which are closely allied to each other—inflammation with and without suppuration of the prostate, the latter often supervening on the former.

Acute inflammation of the prostate is not a common affection, when unassociated with other inflammations of the urinary tract. The prostate being rather non-inflammatory in character may serve a useful purpose in checking the extension of inflammation from the much exposed and susceptible urethra below, to the more vital organs above. These structural differences acting as a barrier, and tending to limit the progress of a variety of certain pathological conditions. (Harrison. Ashhurst's Encyclopædia, Vol. 1). Occasionally it is found influenced apparently as a pure idiopathic occurrence, and not from continuity of tissue with surrounding parts.

The causes of inflammation of the prostate are inflammation of the urethra, especially gonorrhœal, by continuity as before stated.

Stricture of the urethra in aggravated form, particularly those deep in the urethra and near the prostate.

Calculi in the bladder and of the prostate.

Direct application of irritants in the shape of strong injections and applications, traumatism, violence from the passage of instruments, cold,

damp, as from sitting on the ground. Pyæmia is a frequent cause of prostatitis which shortly runs into the formation of abscess, probably the result of a thrombi in the prostatic plexus. These, as a rule, are seldom detected before death, as they are liable to be masked by the other more distressing symptoms. I once found an abscess of this sort in a patient who died from pyæmia while I was House Surgeon at the University Hospital. The abscess was about the size of a hazel-nut, and situated near the orifice of the urethra and quite superficial, being just below the mucous membrane.

Among the abuses which may be stated as predisposing factors in producing the affection are excessive use of alcohol, venery, horseback riding, drastic purges, highly seasoned food, ascariæ, hæmorrhoids, constipation and sedentary habits. It is probable that the two latter tend to produce a condition of the veins of the abdomen and those of the prostate which may prove slight predisposing causes.

Morbid Anatomy.—It is very difficult to get an opportunity to examine the prostate in the acute inflammatory stage, as many cases go on to resolution without suppuration. The organ may be swollen to twice or quadruple its normal size, full, tense, and firm to the finger, and yet gradually subside without the formation of pus. If the inflammatory action advances, the prostatic fluid will be found to be mixed with pus. If section is made into the gland, small points of pus will be found, not frank abscesses, but as the secretion of the gland crypts whose cavities are distended with it. If resolution does not take place, and the morbid action continues with the formation of a number of small abscesses varying from a millet seed to a pea in size, these may be increased by running into each other, the intervening tissue finally breaking down, often accompanied by small hæmorrhages into the abscess cavity, or into the gland crypts. Portions of the organ may become softened or sphacelated, or even gangrenous as stated by Brumstead. The mucous membrane of the prostatic urethra is inflamed, thickened, and sometimes has a membrane-like deposit, the result of inflammatory lymph.

It is generally observed that the pus of prostatic abscesses is glutinous or sticky in character, generally differing from the ordinary healthy pus found in other parts of the body. Abscess may form in the prostate in different ways. Acute abscess sometimes develop rapidly in prostatitis and quickly discharge themselves most commonly into the urethra. By inserting the finger into the rectum the prostate will feel full and tense and much larger than normal. If two fingers are inserted, fluctuation may be readily detected. Suddenly a discharge of pus may take place by the urethra and all symptoms may rapidly disap-

pear, which is a most favorable result; or the abscess may burst into the rectum often leaving behind a vesico-rectal fistula. In rare cases the matter will work its way up between the bladder and the rectum into the peritoneal cavity, causing general peritonitis and death. A unique case of prostatic abscess is reported by Dr. Deaver, where it opened above Poupart's ligament. Rarely, I think, will prostatic abscesses point into the perineum, owing to the fact that pus will always burrow or work its way towards the point offering the least resistance, and the deep perineal fascia here acts as a great barrier.

Prostatic abscesses may also assume a chronic condition in a variety of ways.

1. The ordinary abscess may refuse to heal.
2. The essentially chronic tubercular suppuration may take place in the prostate.
3. Abscess may be established by the presence of a foreign body as a calculi imbedded in the gland.
4. Malignant growth may be the cause of a chronic suppurative process.

The earlier symptoms of prostatitis, or a sense of weight and fulness about the rectum and perineum with some pain and uneasiness referred to the neck of the bladder, a frequent desire to void the urine, which is accompanied by an increase of pain, especially at the close of the act. As the disease advances these symptoms increase in intensity, the pain becomes more lancinating and pulsatile in character; a sense of swelling and tension is experienced in the anus and perineum; movements of the body are accompanied with severe pain; aggravated by attempts at stool, and more so by the act of micturition; the stream of urine is small, its passage prolonged, accompanied by much tenesmus. As the swelling increases in size complete retention may follow and last for days, requiring the use of the catheter, the introduction of which always produces a great deal of pain when it arrives at the prostatic portion of the urethra. Septic fever manifests itself after the earlier local symptoms, rigors often accompanying the onset of suppuration; not infrequently pain in the back and loins running down the thighs and the glans penis, and a sensation of a constant desire to go to stool, with great tension, weight and pulsation in the perineum and neck of the bladder. After four to six days, if the acute symptoms do not subside, suppuration may be suspected. This fact is easily determined by introducing the finger into the rectum; if the swelling then increases and communicates to the finger a sense of softness and elasticity in place of the firmness and resistance which before existed, an abscess cavity must be recognized. This examination often causes intense pain, and requires the utmost gentleness on the part of the surgeon. Pressure on the perineum may also reveal great tender-

ness, but rarely can fluctuation ever be satisfactorily detected there, owing to the depth and firmness of the tissues in spontaneous evacuation. The usual course for abscesses situated near the mucous surface of the prostate is to evacuate themselves either into the bladder or urethra. Sometimes the contents of an abscess will be discharged through a catheter in the attempt to relieve retention which is so common in these cases, the catheter breaking through the abscess wall. Undetected abscess of the prostate frequently burst into the rectum, and may or may not leave a fistulous opening between the bladder and rectum. Sir Henry Thompson cites a case where a patient of his while at stool suddenly evacuated two ounces of healthy pus, which was followed by a less amount each day until the cavity closed. My colleague, Dr. John B. Deaver, has furnished me with the notes of a case of tubercular abscess of the prostate which first made its appearance by pointing above Poupart's ligament on the right side, where it was opened with some temporary relief to the patient, in the belief that it was a tubercular abscess of the inguinal glands. A month later a similar lump made its appearance in the opposite groin, pointed, and was opened. The patient soon died. The post-mortem showed the prostate to be the seat of an abscess with tubercular deposits in the lungs and kidneys.

A somewhat similar case occurred in my own practice of tubercular character, where the pus was discharged by the urethra. The bladder symptoms had extended for a period of over ten years with the passage of blood and pus at times. The patient had been in the hands of most skilful specialists, but the exact character was not made clear until after death. The autopsy revealed a large tubercular abscess which had discharged into the urethra, with almost complete destruction of the entire prostate. Tubercular deposits were found spread over the surface of the bladder, the latter being contracted and thickened. There was also involvement of both kidneys and lungs.

From what has been said, the diagnosis of prostatitis running into abscess, or abscess itself, can with care be easily made out, if sufficient care is exercised and time is given to the examination of the patient. Prostatitis and abscess are most likely to be confounded with cystitis or vesical calculus, the former of which is by far the more common affection. The latter is easily excluded by its prolonged history and insidious character. It must be borne in mind, however, that both of these conditions may antedate an existing prostatic abscess.

The distinction between cystitis and prostatitis may be easily established by marking the following conditions:

PROSTATITIS.	CYSTITIS.
1. Not a common disease.	1. A common disease.
2. Pain chiefly restricted to perineum and anus, and accompanied by fulness.	2. Not so limited and little if any perineal or rectal fulness.
3. Pain violent and throbbing.	3. Pain is not throbbing.
4. Stream of urine diminished in size.	4. Stream of urine may be normal in size.
5. Pain aggravated during defecation.	5. Not necessarily so.
6. Retention of urine probable.	6. Improbable.
7. Digital examination of the rectum reveals marked swelling and tenderness of the prostate.	7. No enlargement, and little tenderness.

The treatment of prostatitis or abscess, constitutes the ordinary constitutional treatment for inflammation. The bowels should be gently opened by an enema. Purges are to be strongly contra-indicated.

So great an authority as Mr. Harrison says that he would just as much think of ordering a man to walk a mile with an acute synovitis, as to order a patient suffering from prostatitis a purge—still, the bowels are to be kept, if possible, in a soluble condition. The local treatment demands special attention. Bleeding affords more relief than any single agent, preferably by means of leeches to the perineum, ten to a dozen being applied. Some advise the application of leeches to the rectum by means of a specially devised tube for the purpose, with cupping of the perineum, until six to ten ounces of blood are removed. This is often difficult to accomplish and requires a degree of skill that is not always to be procured. Hot hip baths at temperature 100 raised to 105, but continued for a short time, and frequently repeated. Hot water thrown into the bowel often affords great relief.

Mr. Guthrie advises at times the washing out of the bladder with hot water in which a little acetate of morphia has been added. This may be done at the time the catheter is passed, in order to relieve the retention. The too frequent passage of the instrument is to be avoided, and in the acute stage of the disease the catheter should never be left in the bladder, as its presence only adds fuel to the flame. Some have advised the use in a similar way of ice. As a rule this is not grateful to the patient. Probably one of the most troublesome conditions to be met with is the retention which will require the use of a catheter from three to four times a day. The best instrument is the soft rubber one, about No. 14 French, a small instrument meeting with less resistance in passing through the inflamed prostatic urethra. Instant relief is often afforded by the sudden escape of pus by the rupture of the abscess. Pain is to be relieved by the free use of opium or morphia combined with belladonna by the mouth or rectum, preferably the

latter if the introduction of a suppository is not accompanied by too much pain. The diet is to be light and non-irritating.

If the inflammation goes on to suppuration, making itself manifest by fluctuation in the rectum, and accompanied by chill and other signs of pus formation, its immediate evacuation is imperative. As to this point authorities are at variance. Some prefer puncture through the rectum, others attempting to rupture the abscess into the bladder by the introduction of a sound, making pressure between the end of the finger in the rectum and the tip of the sound. A catheter with a stylet has been devised for this purpose.

Incision in the median line with a long straight bistoury, the finger of the left hand having been inserted into the bowel, the point of entrance being about three-fourths of an inch in front of the anus in the line of the raphe. The depth of such an incision should be from one and one-half to two inches; less than that will in all probability be worse than useless.

English, of Vienna, advises an incision similar to that practiced for lateral lithotomy, cutting down upon a staff. The latter operation seems to be only indicated when the abscess is confined to one lobe of the prostate, besides being a much more formidable operation for the average practitioner, and liable to be followed by more or less bleeding as in all probability the transverse perineal artery will be cut. I opened an abscess of the prostate in the median line following an obstinate stricture which gave immediate relief, the urine ceasing to flow through the opening in two days. It is sometimes well after the deep perineal fascia has been divided, to work down, or rather up, with a grooved director; in that way the abscess can sometimes be easily ruptured, even if only one of the lateral lobes are affected. The opening made through the rectum as advised by Mr. Collins, ordinarily is to be deprecated, although many cases will do well if so treated. Mr. Meade (*Medical Times*, Oct. 20, p. 60) reports half a dozen cases where this treatment was pursued, and strongly advocates it. If the surgeon could be assured that no communication with the bladder would follow; leaving a urethro-rectal fistula, there might be some grounds for advising this mode of dealing with an abscess in this region. If the abscess points, bursts into the peritoneal cavity working its way up through the recto-vesical space, nothing is left but to open the abdomen in the median line, wash it out thoroughly and draining—the treatment similar to that pursued for other pelvic collections of matter. A case similar to this is cited by Mr. Adams in his work on diseases of the prostate gland. It, however, terminated fatally by peritonitis.

The discharge of matter from an acute abscess is sometimes followed by prolonged suppuration,

forming what is known as a chronic abscess. However, this chronic suppuration is always due to some cause as imperfect drainage, as stricture of the urethra, or a tubercular abscess which refuses to heal, owing to the tubercular irritation coming from further up the urinary tract, etc. In all operative measures that may be pursued on the prostate the patient is to be etherized and placed in the lithotomy position, the bowel having been previously cleansed out with a warm enema of soap and water. After the contents of the abscess have been evacuated, it should be washed out with a solution of bichloride of mercury 1-2000. If it is of a tubercular character, scraping the abscess cavity with a curette and washing out with the same solution. This class of patients always require a very supporting treatment, quinine, cod-liver oil stimulant, and under the most favorable circumstances the ultimate prognosis is not very encouraging. From what has been said the surgeon, if careful, can hardly fail to make a satisfactory diagnosis if care and time is taken in making an examination, which is never complete without having thoroughly explored the rectum with the finger.

I have heard the late Dr. J. H. Hutchinson say, that far more errors were made through the imperfect examination of patients, than from ignorance on the part of the physician. The method of treatment by incision in the median line up and into the prostate, evacuating the contents of the abscess, is to my mind the safest, surest and most reliable means of dealing with this class of affections, and is preëminently the one to be strongly advised, giving perfect drainage and avoiding all risks of subsequent complications.

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MEDICAL PROGRESS.

HEREDITARY CATARACT.—DR. FUKOLA (*Internat. Klin. Rundschau*), was consulted in May, 1889, by A. R., female, æt. 30 years. She wished to have her eyes examined, to know if they were free from cataract, as that trouble had frequently presented itself in the family. The great-grandmother of the patient had marked impairment of vision, the nature of the trouble being unknown.

The grandmother of the patient had double cataract when 40 years of age. Of the thirteen children of this grandmother, nine had cataract, one of whom was the mother of the patient. They all developed the disease comparatively young, one at 20, and the latest at 40. The anxiety in this family is so great that some of them will not marry, for fear of transmitting the disease to offspring. An aunt of the patient had five children, three of whom had cataracts at the age of 20, 22, and 33 years. Another aunt that had emigrated to America, had two children out of ten affected. The mother of the patient had five children, three of whom had cataract. Two uncles also had one child, each, with cataract.

Another case was that of Mrs. S., who had a brother and sister similarly affected, as well as a grandmother and an aunt.

Elizabeth B. was operated for cataract when 62 years of age, her brother, of about the same age, being similarly affected.

Two children, brother and sister, presented cataracts. They were strong and healthy. No other members of the family affected.

The writer adds, at the close, that hereditary cataract generally affects young persons—in the first family, those from 20 to 40 years of age, the oldest 50. In all cases, the urine was carefully examined.

TOXALBUMEN.—(*Berlin Klin. Wochenschrift*, Nos. 11 and 12, 1890.)—BRIEGER and FRAENKEL describe their investigations of the question whether pathogenic bacteria work their mischief by the intervention of chemical poisons which they may originate during their growth and development. Of course, the first condition for successful inquiry was to employ pure cultivations of the organisms experimented upon. Basic bodies, denominated "toxine," had already been found in several pathogenic microorganisms, such as the bacillus of typhoid, tetanus, cholera, etc. Yet it was found that this toxine did not invariably call forth all the phenomena of the infectious diseases due to the bacilli, from pure cultivations of which it had been obtained; the supposition, therefore, seems fair that, besides the already found chemical bodies, there were other substances which played a momentous part.

Brieger and Fraenkel considered that Löffler's bacillus of diphtheria was well adapted for their purpose, because it is now beyond doubt that this organism is the genuine cause of diphtheria.

Löffler had already called attention to the fact that this bacillus, when inoculated on animals, guinea-pigs and pigeons, colonized only the immediate neighborhood of the infected spot, yet grave alterations of texture and organs, and speedy death of the animals experimented on followed.

This connection of events could only be ex-

plained in this way—that the bacilli produced, by their local multiplication, a substance of exceedingly poisonous properties, which spread over the whole organism and, independently of the bacteria, did its deadly work.

Brieger and Fraenkel consider that they have proved that Löffler's diphtheria bacillus engenders in its pure cultivation a poisonous, soluble substance separable from the bacteria, and which, when injected into susceptible animals, calls forth the same phenomena as the injection of the living microorganism. The authors also have settled that this substance is destroyed by a heat of 60° C. (140° F.); that it can stand a heat of 50° C., even in presence of excess of muriatic acid. This last fact itself speaks against the supposition that the poison of the diphtheria bacillus is a ferment or an enzym.

Further examination of this substance showed it was not a ptomaine or toxine; no crystalline substance, save kreatinin and cholin, was obtained. Shortly summing up their investigations, the authors seem to have discovered in the diphtheria bacillus a substance belonging to the albumin series of bodies, which has poisonous properties, and causes the phenomena of diphtheria when injected. They propose to give it the name "toxalbumine." In the living body, they consider that the bacteria build up and separate their toxalbumine from the albumen of the tissues.

Brieger and Fraenkel also examined typhoid, cholera, and cholera bacteria, and staphylococcus and watery extracts of the internal organs of animals killed by anthrax, in the same way as they had examined the diphtheria bacillus, and found in all of them bodies which, according to their chemical behavior, were albuminoids, were poisonous, and could therefore be aptly called toxalbumines.

The road from normal constituents of the body to substances of the most dangerous kind seems a very short one, and our organism itself may be looked upon as the proximate cause of morbid conditions, let loose by the life-activity of bacteria.—*Edinburgh Med. Journal.*

CAFFEIN IN ADYNAMIC CONDITIONS.—PROF. HUCHARD, before the Société Médicale des Hôpitaux, described the excellent results obtained by the hypodermatic use of this drug in a severe case of measles, attended by ataxic adynamia. He is of the opinion that the drug is indicated in all adynamic conditions. As early as 1871, he pointed out that caffein has much the same effect on the heart muscle as an electric current upon paralyzed muscles. In general, the dose of the drug has been too small; 4 grs., and in very severe cases as high as 15 grs. Lépine, in 1882, stated that much larger doses might be given, and in cases of asystole he gave from 30 to 45 grs. daily, without unpleasant consequences. The drug has

not only a diuretic effect, but it is a heart tonic as well.

In the discussion, Desnos remarked that hypodermatic injections of caffein frequently caused pain and abscess. Huchard said that these results could be avoided if the injections were made deeply, between the muscles; in the eight years that he had employed the drug, he had only seen two or three abscesses, and they healed readily.

TREATMENT OF GRAVE AEMIA BY SUBCUTANEOUS INJECTIONS OF IODIUM CHLORIDE.—DR. ST. HUZARSKI (*Centralblatt für Gynäkologie*) describes an interesting case of severe anæmia following a tedious but not difficult labor. The uterus contracted well, but shortly after labor was ended, it relaxed and a moderate hæmorrhage took place. The patient presented alarming symptoms, was restless, with weak pulse, and complained of great prostration. Hypodermatics of ether and camphor were given, which produced only temporary relief. The patient soon relapsing into a condition where death seemed imminent. In this emergency a large rectal injection of solution of common salt, which immediately improved all the symptoms, the pulse became stronger, the color returned to the lips. One hour later he was again called and found the patient in extremes. A subcutaneous injection of 1,000 grams of a 6 per cent. solution of sodium chloride was given. This injection was immediately followed by improvement in all the symptoms and the patient went on to slow convalescence.

OREXIN.—DR. GEORGE MILLER has recently (*Therapeutische Monatshefte*, June, 1890), added his experience in the use of this new stomachic. In five cases in which it was given no best improvement in the appetite was noted. The drug was given in from 3 to 7 gr. to patients suffering from various conditions, as intestinal tuberculosis, diarrhœa, phthisis, and diabetes, in which a persistent loss of weight was noted. While five cases were observed, a number from which to draw conclusions, it hardly be said that this mucous is specific.

SALICYLATE OF SODIUM IN PRURITUS.—WERTHEIMER reports the case of a patient suffering from universal cutaneous pruritus of origin, for the relief of which he gave of sodium in fifteen-grain doses daily. After the third dose she enjoyed night's undisturbed sleep she had for the first time, and by the fourth day all its tirely ceased. Smaller doses were given for a few days longer, and she has since been free from any return of the pruritus.

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CREASOTE IN THE TREATMENT OF PHTHISIS.

The treatment of phthisis still leaves much to be desired, and notwithstanding the notable advances of the last few years, a recent writer says that the progress in this disease has an intimate relation with the size of the purse. This is only another way of stating that the various methods so far devised are adapted only for people in comfortable circumstances. While the remark above quoted was made with especial reference to the climatic treatment of pulmonary tuberculosis, the same is true of measures recently devised. The pneumatic cabinet, Weigart's hot air method, the inhalation of nitrate of silver, as well as other modifications of these forms, all presuppose expensive mechanical appliances or the services of trained attendants, that can only be secured by the comparatively wealthy, or in the wards of our larger hospitals.

A cheap and simple remedy, easy of application, that will take the place of the routine and sufficient cod-liver oil and tonic prescriptions, in our large ambulatory clinics, is a desideratum; whether it has been found in creasote, remains to be seen, but there is certainly sufficient evidence now at hand to justify a more extended trial of the drug than it has yet received.

It is nearly ten years since GUMBERT and BOURCHARD published their experience with the drug, and in that time many contributions have appeared in medical literature. The most important of these, that of SUMMERBRODT (quoted by the *Med. Chir. Rundschau*) who reports 5,000 cases treat-

ed, during the past nine years, by increasing doses of creasote.

According to some writers the dose heretofore employed, has been too small. BEGDURITCH (*Meditzinskoe Obozrenië*), himself a sufferer from phthisis, took in four months four ounces and two drachms of creasote. The drug was exhibited by the stomach in capsules, freshly prepared, just before using. Unpleasant symptoms were noticed only when from 12 to 20 minims were taken in an hour, when he suffered from giddiness, cardiac palpitation, small pulse, and general weakness, with pallor and anxiety. The results in his case was some diminution of dulness and a cessation of the crepitant râle. The number of the tubercle bacilli remained about the same. DR. SCHETELIG (*Pharmaceutische Post*) claimed that the drug was free from irritating properties, and that it could be given in 15 to 25 minims daily, for months at a time.

In 1889, DR. BOURGET described his "intensive" method of treating phthisis (*Traitement intensif de la tuberculose par le guaiacol et la creasote de hêtre, Corr.-Bl. f. Schweiz. Aerzte*) which consisted essentially in the administration of guaiacol internally, in wine or cod-liver oil, and the inhalation of creasote, together with inunctions of creasote dissolved in cod-liver oil. In this way comparatively large quantities of the drug were rapidly introduced into the system.

Two later writers who claim signal success with creasote, both used the drug hypodermatically. LÉPINÉ (*La Semaine Médicale*, June 25, '90) recommends the injection of creasote dissolved in oil, into the cellular tissue. The quantity that may be used in this way far exceeds that which is tolerated by the stomach. DR. COLLARD, of the Hôpital des Anglais, (*Gazette Med. de Liège*) has also used the hypodermatic method with excellent results. The most of his patients were well advanced in the disease, frequently presenting marked infiltration with the formation of cavities. One patient received in forty days, seventeen ounces of cod-liver oil containing 540 grains of creasote. The drug was carefully incorporated with the oil, which had been previously sterilized. Occasionally the oil would reappear at the point of injection; one patient who had been for a little time out of the hospital, was readmitted to the surgical wards for one of these accumulations in the lumbo-dorsal region; it was

opened and a considerable quantity of oil evacuated, together with some pus.

Dr. Collard observed an improvement in all the patients treated, the night sweats disappeared, cough lessened, and the bronchial secretion decreased. One peculiar effect noted was the great prostration with fall of temperature that frequently followed the injections. This was experimentally found to be due to the excessive quantity of oil employed, as the same phenomena were noted when the oil alone was used. He also determined that the oil of sweet almonds, and olive oil, were readily absorbed by the cellular tissue, which was not true of cod-liver oil. Therefore he recommends that only olive oil or oil of sweet almonds be used, and that they be reduced to the smallest quantity: one to ten—or perhaps even one to five. No great pain was caused by the injections, particularly if they were made into the deep cellular tissue, and no disturbance of the bowels, digestion or circulation, was observed.

DR. AUSTIN FLINT (*N. Y. Med. Jour.*), and DR. BEVERLY ROBINSON (*Amer. Jour. Med. Sci.*), have used creasote and found it to have considerable value. Dr. Robinson recommends the administration with whisky and glycerine in the proportions of six minims of creasote to two ounces of the former, and one of the latter.

An interesting speculation is as to the possible action of creasote. Most writers agree that it has no direct action upon the bacilli (Cornet, *Ztschr. f. Hyg.*, Collard and others). While these writers could not determine that the bacilli were lessened, it is to be remembered that our present methods of estimating bacilli in sputum are so imperfect, that these statements may be taken with some allowance. While creasote does not directly kill the bacilli, it may so lessen the secretions, or alter the mucous membranes of the respiratory tract, that their development is hindered. The probability of this explanation is heightened by the fact that creasote is excreted largely by the lungs, and the odor of the drug can be detected in the breath shortly after its administration.

To sum up the recent literature we are justified in saying that much is to be expected from the use of creasote in all stages of consumption. When advanced so far that cavities have formed a cure can hardly be looked for, but even in these cases a marked improvement in the more

distressing symptoms may be expected. The drug is preferably administered hypodermatically, dissolved in oil of sweet almonds in the proportion of one to ten. The daily dose is from three to fifteen minims. Pure beech-wood creasote should be used, to the exclusion of the cheaper commercial varieties.

ELECTRICAL EXECUTION.

At last the first criminal execution by means of electricity is an accomplished fact, and KEMMLER, the brutal murderer, is dead. We do not protest against execution of the death penalty as the extreme expression of the law against so foul a crime, but in the name of all that is human, we do protest against a possible recurrence of such a procedure as this—not as to the method, but as to its manner. Let the majesty of the law be manifest by the dignity and surety of its action, but never again let the suspension of the fixed fact become the instrument of criminal torture by prolonging on the part of the victim a suspense, far worse than death itself. And if for wise reasons the laws decree that executions shall be conducted privately, then why permit the horrible delineation of their utmost details with gusto and with talent on the part of the press, worthy of a better cause. If pandering to the basest of human passions, reporters are to run riot in their descriptions of such scenes, then unbar the gates and give to the masses an equal chance and a fair show, even though the revenue of the public press be cut off.

As to the use of electricity in the execution of criminals, we believe the decision of the courts to be wise and in the interest of humanity. The studied effort on the part of reporters to produce a blood-curdling sensation will doubtless exert a more or less prejudicial influence upon the public mind; but, had the same talent been employed to depict the horrors of the gibbet the outcry against hanging would be even more emphatic. The application of the electrical current is as surely instant and as certain as is the fatal drop, and once the plan adopted we believe that death by electricity will seem a far more reasonable procedure than that which permits the dangling of a struggling body for an uncertain period between the heavens and the earth, as though it were unclaimed by either. The English press,

true to its traditions, and ever at war with innovations, is unmeasured in its condemnation of this method.

The London *Standard* says: "The scene can be described as a disgrace to humanity. It will send a thrill of indignation throughout the civilized world. We cannot believe that Americans will allow the electrical execution act to stand."

The London *Chronicle*, commenting upon the killing of Kemmler by electricity, says the scene was worthy of the darkest chambers of the Inquisition in the sixteenth century.

The *Times* says it would be impossible to imagine a more revolting exhibition. It advocates a lethal chamber in preference to the use of electricity.

With reference to these extravagant expressions we can only say, that familiarity with the working of the gibbet must have rendered it less repulsive to English eyes than to ours, but whether death in the mid-heavens be preferable to death in an easy-chair, is hardly a question for such prejudiced minds to pass upon. The suggestion so often made and now referred to, of a lethal chamber as best ensuring a painless death, will doubtless be most carefully considered in its time, and as the world moves on, anæsthesia and electricity each will have its vigorous advocates, *but* as to the old time gibbet—that relic of the darkest age—we confidently believe it has had its day, and that having served its purpose—it *must go!*

BOARDS OF HEALTH AND LEPROSY.

The recent recognition in New York of a case of leprosy in a young Spanish-American, pursuing his studies in that city for about a year, was the occasion of a most remarkable example of officialism on the part of the Board of Health of that city. With no consideration of the facts that there were no objections to the boy residing with his family, and that their pecuniary circumstances were such as to permit the employment of excellent physicians, the unfortunate patient was forcibly removed to a quarantine hospital, isolated, and considerable newspaper notoriety given the case. It might have been supposed that the experience of this Board in the case of suspected yellow fever in the late RICHARD PROCTOR, wherein his forcible removal from his hotel, in rainy weather, dissipated any chance of recovery, would have

taught the lesson of *festina lentè*. Not that any fatal result will possibly ensue in this case, but because there is not a scintilla of evidence that the contagious character of leprosy justifies such treatment, more than that gonorrhœa, syphilis, tuberculosis, typhoid fever, or the exanthemata, should be similarly dealt with.

Only once or twice has official zeal, in any of our States, manifested itself in such a manner. And that it is not the common opinion of the representatives of our State and local boards of health that lepers should be isolated in this country, is demonstrated by the refusal of the conference of those bodies held in Nashville, just preceding the meeting of the Association, to pass a resolution demanding such treatment of these unfortunates. In fact, such a resolution would have been a virtual condemnation of the efficient boards of health in South Carolina, Florida, Louisiana, Minnesota and California, that have carefully considered the question, on account of the greater numerical existence of cases of leprosy than in any other State. And in most of these States, the disease affects aliens solely; though occasionally isolated cases of leprosy have occurred in individuals that have never been out of a limited district in which leprosy was unknown.

If leprosy was even moderately contagious in the United States, it would certainly be much more prevalent than now, for it has existed here more than a hundred years. We know of families in this country in which a mother, perhaps a daughter or a son, were lepers, and yet the other members have remained free from the disease to a ripe old age. Would it have been justifiable to separate the diseased from the healthy, depriving the latter of the enjoyment—melancholy though it be—of caring for those dear to them during the many years the disease may take to run its course?

Considering the divided opinion of authoritative dermatologists regarding the contagious character of the disease at all; and disbelieving that the experience of certain tropical countries, in which poor food, lack of clothing and shelter, and deficient stamina, are inciting causes of leprosy, will find a parallel in the infinitely more sanitariously situated population of the United States, we would, in the name of rational medicine, bespeak a more considerate action in the treatment of lepers, than that which recently governed the New York Board of Health.

EDITORIAL NOTES.

INTERNATIONAL MEDICAL CONGRESS.—The Tenth International Medical Congress opened in Berlin, Aug. 4. Herr von Boetticher, Chief of the Imperial Home Office and representative of the Chancellor; Herr von Maltzahn, Imperial Treasurer; Dr. von Gossler, Prussian Minister of Ecclesiastical Affairs, Instruction and Medicinal Affairs, and Herr Herrfurth, Prussian Minister of the Interior, represented the German Government at the opening ceremony. Prof. Virchow, President of the Congress, made the opening address. He expressed the Emperor's sympathy with the objects of the Congress, and said that Germany would devote herself to science and humane efforts.

Two thousand five hundred German and 2,500 foreign doctors, including 500 physicians from America, were present. Herr v. Boetticher made an address welcoming the delegates on behalf of the German States, and Dr. von Gossler welcomed them on behalf of the Educational Department. An address welcoming the delegates to Berlin was made by the burgomaster of the city.

Dr. Hamilton, Surgeon-General of the United States Marine-Hospital Service, who was Secretary of the Congress held last year at Washington, and others made speeches in response to the addresses of welcome.

Among the British doctors attending the Congress were: Sir James Paget, Sir Andrew Clarke, Professor Stewart of Edinburgh, and Professor Stokes, of Dublin. Of the American physicians present at the Congress, and of the papers submitted by them, we shall speak more fully in our next issue.

An invitation had been extended to the Congress to hold its next meeting in Chicago in 1893, in connection with the World's Columbian Exposition, but Rome was selected.

Professor Virchow, President of the present Congress, read a letter from Sig. Crispi, the Italian Prime Minister, stating that he was rejoiced that Rome had been selected as the place for the next meeting, and welcoming the medical profession to the hospitalities of Italy.

The festivities attending the Congress have formed a prominent feature. There has been a constant succession of banquets, balls, and receptions. At the opening banquet, at which Prince Theodore, of Bavaria, and Ministers Gossler and

Boetticher were present, Dr. Lyden proposed the health of Minister Phelps, who, in his response, pointed to the presence of 623 Americans as most eloquent testimony to the interest taken in the Congress by the medical profession in America.

Mr. Phelps marked the close of the Congress with a dinner given to Surgeon-General Hamilton and other army and navy officials. Among the guests were Baron von Bunsen, Gen. Wilson, Col. F. Jones, Dr. Jacobi, Prof. Lusk, and Capt. Bingham.

Prof. Virchow, in his closing address, noticed the fact that the Congress had brought together the greatest number of scientists ever congregated. The proceedings, he said, had been in every way worthy of the medical science and had been characterized by brotherly regard. Dr. Billings, of Washington, expressed the thanks of the members to the organizers of the Congress.

On the third day there had been not less than 7,000 cards of membership issued. Of this number, there were 623 American names enrolled, 421 were Russian, 353 were British, and 173 were French. The "boycott" by the French, which was first asserted and then denied, proves to have been very nearly successful—a fact that is regrettable by the medical world at large. According to some of the press cablegrams, there can be little doubt that the hotel accommodations, and some other of the arrangements of the Local Committee, have been overstrained, but the indications are that the scientific proceedings have been almost unexpectedly interesting and instructive, and in all of which American contributors have not been behindhand.

A MUNIFICENT BEQUEST TO THE MEDICAL COLLEGE OF INDIANA.—Dr. William Lomax, an aged and wealthy physician of Marion, this State, has given his estate, valued at \$100,000, to the Medical College of Indiana. He at first desired to present the money to the college through Depaw University at Greencastle, thus benefiting both institutions, but making the Medical College a department of the university. In this desire he failed, and in consequence now donates his estate outright to the college. It was found, when it came to arranging the preliminaries, that various obstacles stood in the way of the acceptance of the gift by the college as it was constituted, and in order to facilitate matters and

make everything satisfactory to donor and recipient it was determined to reorganize the institution. The necessary changes have been effected, the members having among their number Governor Hovey and the Hon. William H. English.

THE PLAGUE.—This disease has again appeared in malignant form in the little village of Kalé-Daraéphan, in Persia. The inhabitants number 280, and up to June 14, forty-two cases were reported, of which twenty-six were fatal. The characteristics of the disease of special note were, engorgement of axillary and inguinal glands, subnormal temperature, 40°; anthrax, and bluish eruption of the skin. In Spain the disease is at a stand, there being few reports of new cases. The Commission appointed by the Spanish Government to investigate the disease, have pronounced it true Asiatic cholera. Rigid inspection is ordered by the French Government of all travelers arriving on its frontiers from Algiers or Spain, and reports of such arrivals in Paris are at once reported to the prefect of police.

DUSTERS AND DISEASE.—A circular of information has been prepared by Dr. Benjamin Lee, Secretary of the State Board of Health of Pennsylvania, on the precautions to be taken by the patient and others against consumption. In addition to the usual counsel given in such circulars, the feather duster finds prominent mention as follows:

The duster, and especially that potent distributor of germs, the feather duster, should never be used in the room habitually occupied by a consumptive. The floor, wood work, and furniture should be wiped with a damp cloth. The patient's clothing should be kept by itself, and thoroughly boiled when washed. It need hardly be said that the room should be ventilated as thoroughly as is consistent with the maintenance of a proper temperature.

The feather duster is probably the least sanitary of all the so-called cleansing utensils to be found in our homes. In the sick-room it is little better than an abomination.

UNIVERSITY OF THE CITY OF NEW YORK.—The University this year commemorates its fiftieth anniversary. Its Dispensary and Laboratory buildings, recently erected, will add materially to its facilities for teaching. We especially note the requirement of an entrance examination, on the part of those who do not possess an academic or

scientific degree, as a condition to graduation. Thus, one by one, the colleges are following the good example which was set by other medical schools which we could name, a good while ago. During the fifty years, 5,832 students have received the degree of M.D. from this institution.

A FEMALE DENTAL SURGEON.—Miss Anne F. Reynolds, D.D.S., holds the first dental degree that has been granted in Massachusetts. She graduated June 19, from the Boston Dental College. She also received the first prize for senior honors.

DISTINCTION FOR DR. ROSSE.—Dr. Irving C. Rosse, of Washington, has lately had conferred upon him the honorable distinction of F. R. G. S. by election as fellow of the Royal Geographical Society, through the recommendation of Sir T. Fowell Buxton, Bart., and Mr. George Barclay, of the British legation. The compliment is a recognition of services as traveller and explorer, more particularly in the Siberian Arctic, where the doctor was first to scale Herald Island and to land on Wrangel Land during the search for the exploring yacht *Jeannette* and the missing whalers.

SENN'S work on Surgical Bacteriology has been translated into the French by Broca.

PRIZES.—The Barcelona Medical and Surgical Academy has offered a prize of 1,500 pesetas for an essay on the treatment of acute febrile processes, with especial reference to the use of antipyretics. The second best essay receives 750 pesetas.

CHOLERA IN ARABIA.—There has been an extension of cholera to Mecca during July, which cannot be regarded otherwise than a most unfavorable prognostic of the spread of the pestilence beyond Asia. The number of deaths at Mecca, in the last week in July, is reported to have averaged eighty *per diem*. All ports along the Red Sea, in the Levant and Asia Minor, have been quarantined as against the pilgrims returning from the Holy City.

CREMATION seems to be making rapid progress upon the continent. The crematories at Milan, Gotha, and London, all report an increase in the number of incinerations while that in Paris heads the list with 532. A cremation society has recently been organized in Stockholm.

TOPICS OF THE WEEK.

SOLDIER SURGEONS.

And wherefore, soldiers! to our country's shame,
 Is there no record yet of Thomson's name?
 No stone to mark how that devoted one
 By the Red Alma, when the fray was done,
 In mercy to the wounded of the o'erthrown,
 Remained to do his Godlike work—alone?
 Where'er he looked were marks of fire and steel,
 Spent shot and shell, dismounted gun and wheel,
 The broken sabre and the cloven helm—
 All that could daunt the soul or overwhelm;
 Corpses in heaps, the dead and staggering steed,
 And groups of wounded in their direst need!
 But yet the gallant Scot maintained his post,
 Beside a remnant of the Russian host,
 Whose wounds—such wounds! his orders were to dress,
 And soothe the sufferers in their mad distress.
 Foes to a man—right pleasant patients they—
 Eight hundred Calmucks who had lost the day;
 But down he knelt beneath the lowering heaven,
 And, in pursuance of the order given,
 Went to his duty with a manly heart,
 Soldier and surgeon, true to either part.
 With only one attendant who could speak
 His country's tongue, amid increasing shriek
 And groan, and wail, and cry, woful to hear—
 The raven and the vulture hovering near—
 There, unappalled by all these sounds and sights,
 Nobly he toiled two fearful days and nights.
 Limb after limb examined and bound up,
 And poured the cordial balsam in the cup,
 Desisting only when himself struck down,
 The unconscious winner of a world's renown.
 No better they who, battle blade in hand,
 Support the martial glories of their land,
 Than he who, by no stirring passions warmed,
 Flings down his sword when all beside are armed,
 And while the bullets whistle round his head,
 In field, or trench, perchance his gory bed,
 Soothes and sustains his comrades under fire
 With a devotion no neglect can tire.
 Neglect! by Heavens! they were a sorry crew
 Could well forget the deeds such heroes do!
 The lives they save, the courage men reveal
 Who rush on death, confiding in their zeal.
 Which most a nation's gratitude deserve—
 Those who in peril's hour show skill and nerve,
 Or they, the brainless chiefs, whose'er they be,
 Who could not make between their camp and sea,
 The two ends of a wretched roadway meet,
 That starving thousands and their steeds might eat,
 Though food for both, on Balaclava's shore,
 Rotted in heaps within their cannon's roar?
 Neglect! Up, every man now sound and whole,
 Whose wounds were salved before Sebastopol—
 Up, all whom ill-paid Science rescued thence
 From desolating plague and pestilence;
 And one and all, in your preserver's case,
 Call on a thankless Government to place
 Honors on breasts as yet unjustly bare!
 Were these the men that lost an army there?
 In siege or battle, under any sun,
 Our soldier surgeons yield the palm to none!

—SURGEON-MAJOR, *Brit. Med. Journal*.

DRUG ADULTERATION.

The New York State Analyst has, during the past year, examined 417 samples of pharmacopœial drugs, purchased from twenty different druggists, and 115 samples of cream of tartar procured from grocers. Of

the totality of 532 samples 43.8 per cent. were found of good quality, 10.2 per cent. fair, 24.4 inferior, 6.2 per cent. not as called for, 4.5 excessive, and 10.9 per cent. entirely fictitious. Of the samples of cream of tartar thirty were genuine, twenty-seven were adulterated, and fifty-eight fictitious. The state analysts are doing a great work, so are the committees on adulteration of the state pharmaceutical associations, but their disclosures of these frauds will come to naught unless prosecution and punishment are meted out to those guilty of these dishonest practices. Adulteration and substitution, harmless or harmful, are crimes. There is no gradation from right to wrong, the line of separation is sharply drawn, and he who deliberately sophisticates an article, he who sells it, and he who consents to its sale, without protesting, are alike guilty. These are plain words, but they are true. Nor is ignorance a valid excuse. The druggist who whines that he did not know his wares were below standard cannot therefore be absolved from fault. It is his business to know, and he is culpable, if he does not test his drugs and sell them on their merits. Dishonesty is bad enough in any line of trade, but when it touches the traffic in food and medicine, it is specially abhorrent.

It is seldom that adulteration is practiced from any other motive than that of a desire for pecuniary gain. Were it possible to eliminate from the make-up of mankind the "love of money which is the root of all evil," the millenium would be at hand. Why does the manufacturer produce, the jobber handle, the retailer buy and dispense, an inferior or fraudulent article? Merely for a few cents additional profit. The druggist sells knowingly, an adulterated cream of tartar, and asks "Where's the harm? It injures no one." Possibly it does work no special bodily injury to the consumer, perhaps, also, no mention should be made of the additional damage to the dealer's already badly blunted moral sense, but if the fraud be discovered the pecuniary damage would be such as to show him that there is harm. The argument of financial loss is the only one that appeals with much force and weight to this variety of druggist.

Much, not all, of the prevalent adulteration is effected by the first handler or producer, but it takes two to make a bargain, and it is necessary that he find a market for his goods. If retailers would not handle adulterated or inferior drugs, the wholesalers and manufacturers would not offer them. It is useless to attempt the reform of the wilfully dishonest druggist. It is from the large majority of honest intentioned men that the protest must come. Examine, test, prove your drugs, force the dealers to furnish honest articles, and sell nothing under misrepresentation. Do right for right's sake, frown upon dishonesty because it is evil, especially that dishonesty whose existence depends primarily on monetary gain.—*Pharmaceutical Era*.

MEDICAL CONGRESS IN JAPAN.

It was inevitable that the Japanese who have shown so remarkable a power of assimilating the details of Western civilization should before long hold a Medical Congress. Accordingly, the first gathering of the kind in Japan was held at Tokyo, from April 1st to the 7th. In spite of the

somewhat inauspicious day chosen for the opening, the meeting was a great success, though only two foreign doctors were present; as there are nearly forty non-Japanese practitioners at Tokyo and Yokohama, some disappointment was felt that more of them did not grace the assembly with their presence. It is hinted, however, that the Invitation committee was chiefly responsible for the absence of the foreign element. The proceedings were of the usual kind: addresses on various more or less interesting subjects being delivered, cases and inventions, new and old, exhibited, etc. Complaint is made in some quarters that the scientific communications were not sufficiently inspired by the *genius loci*, little or nothing of special interest to the Japanese people being contained in them. As compared with other congresses, festivities seem to have been few and far between, though we are told that on the last day there was a "general social gathering in Shiba Park, at which there was an ample provision for refreshment."

HOW RESPECT FOR SCIENCE IS ENFORCED IN RUSSIA.

Le Journal de Médecine de Paris, June 22, 1890, is responsible for the following: "A correspondent at St. Petersburg writes, 'An extraordinary affair at Odessa has come to my knowledge. There is in the city in question an Institute of Bacteriology, founded and maintained by the municipality. The director is a Dr. Bardach, a pupil of Pasteur, who superintends the vaccination of cattle against anthrax and Siberian plague, after the method of Pasteur. The Russian Imperial Government sent circulars to all the landed proprietors of the South of Russia, requiring them to have their cattle vaccinated, and the brothers Pankvatjeff, two millionaires, accordingly sent for Dr. Bardach the other day to come to their estates in order to vaccinate their cattle. Unfortunately, the doctor made some mistake in the vaccine virus, and in two days there died 3,552 sheep, 1,200 horned cattle, and some hundreds of horses. Their owners brought an action against the Bacteriological Institute, that is to say against the city of Odessa, and demanded damages. The case was tried a few days ago. The counsel for the city stigmatized the brothers Pankvatjeff as persons knowing nothing of scientific matters, and stated that he was at a loss how to characterize 'persons who dared attack the great and celebrated *savant* Pasteur.' In short, he pleaded so effectually that not only did the brothers Pankvatjeff fail to obtain a verdict, but the tribunal condemned them to pay, in common, a fine of 3,500 francs, as well as the costs of the trial, *pour leur apprendre à mieux estimer la science*.'"—*London Med. Recorder*.

VACCINATION IN INDIA.

A valuable communication on the prevalence of small-pox in Calcutta, read before the Medical Society by Dr. K. C. Bose, of that city, and reported in the *Indian Medical Gazette*, contains a great deal of most interesting information concerning the gradually awakening attitude of the people of India in regard to the prophylactic influence of vaccination. Dr. Bose declares that he has never seen small-pox occur in a revaccinated person, and

he very frequently vaccinates those smitten with the disease on the second day of the fever with the most-encouraging results, and vaccination during the incubative stage he considers to be, at his hands, the means of preserving very many lives. On the question of popularizing vaccination among the natives, the deputy superintendent of the process for Calcutta declares that Dr. Bose's assistance has been effectual in enabling the protection to be introduced into a good many respectable houses, the dread excited by the prevalent epidemic being used as an important agent in the conversion of the people. He firmly believes that, as its protective virtues are appreciated, vaccination will grow in favor and become general bye-and-bye.—*London Med. Recorder*.

RELICS OF BARBARISM IN THE GERMAN UNIVERSITIES.

With all their learning and teaching power, the German universities retain some rather unlovely traditions, of which duelling is perhaps the most redolent of barbarism. True, the vast majority of "hostile meetings" between undergraduates seldom result in more than facial disfigurement; but sometimes, when firearms are the weapons chosen instead of swords, danger is inevitable, and even death may occur. A melancholy illustration of this has lately been witnessed at Wurzburg, where a highly promising and amiable "candidatus medicus" lost his life. Paul Fleurer, the unfortunate youth in question, seems to have played a truly chivalrous part in the encounter; for after a first, and then a second, interchange of shots, he held out his hand twice in token of reconciliation with his antagonist, but in vain. A third interchange was insisted on, and poor Fleurer fell mortally wounded, and died in a few minutes. At his funeral, which was attended by the students in large numbers, and with all the insignia of mourning, *oraisons funèbres* were delivered, the principal of which referred to the deceased as the victim of an "unfortunately still prevailing prejudice"—surely an inadequate condemnation of a practice which finds no favor in the better-mannered academic life of Great Britain and America.—*The Lancet*.

LIBERALITY OF A CONTINENTAL SURGEON.

Examples of liberality in medical men are never very far to seek, though it is, of course, but rarely that members of our profession are sufficiently wealthy to make gifts of large sums for the public good. An excellent example of what some of the more fortunate of our continental brethren are able at times to do in this respect has recently occurred. Prof. Sklifasovski, the eminent Moscow surgeon, having performed two operations on wealthy patients in Odessa, received from one of them about 200 guineas, and from the other a still more substantial fee, amounting to more than £1,200. The University of Odessa has not possessed a complete medical faculty, but this is now being created, and Professor Sklifasovski has presented the whole of the larger fee to the new faculty, for the purpose of endowing a scholarship for poor students.

PRACTICAL NOTES.

CHRISTOPHER ON SUMMER COMPLAINT.

The true pathology of this disease, or group of diseases, is by no means settled. Dr. Christopher discusses the subject in an interesting paper. He points out that the pathology of the disease comprises three divisions: (a) its morbid anatomy; (b) its bacteriology; (c) its chemistry. It has become the custom to discuss this disease, from one or other standpoint, according to the fancy of the writer, and with little or no reference to the other divisions of the subject. A case of summer complaint presents symptoms on the part of the bowels, on the part of the circulation, of the respiration, the kidneys, the skin, and the great nervous centres. The bowel symptoms are usually the most prominent. The odor of the stool is a most important feature; practically, it is always offensive, and in a great proportion of cases can be described as either sour or putrid. Every such stool is a fermenting mass, and the odor enables us to recognize two great classes of fermentations, one giving rise to *acid* smelling stools, the other to *putrid* stools. A putrid stool means fermentation of albuminous or colloidous material. Nitrogenous tissue is necessary for putrefaction. An acid stool, on the other hand, has its origin in the carbohydrates, and fats of the food. It is true that proteids contain a carbohydrate nucleus, and in decomposition may give rise to carbohydrates, or fatty acids, but the amounts so set free are merely nominal. The anatomical lesions in summer complaint are utterly inadequate to explain the symptoms, especially in acute cases. The best proof of the subordinate position held by lesions is the fact that the severest cases, those which terminate fatally within four days, have no lesions at all. They are to be regarded as the results of fermentation, and are more marked in proportion to the duration of the disease. They assist in prolonging the disease, and in all probability act by providing a habitat for the microorganisms. The etiological importance of hot weather in the production of the diseases has been demonstrated beyond question. Improper feeding and overcrowding must be classed as factors in the production of the complaint. The diet during the attack should be determined by the conditions within the bowels, as shown by the stools. In putrid fermentations, carbohydrates should constitute the food. If a case of recent putrid intestinal fermentation be limited to a non-albuminous diet, the putridity will cease in twenty-four to forty-eight hours. In a case which has acid stools from the beginning, the food should be albuminous, that is white of egg. Here trouble is liable to arise from the starting of a putrid fermentation by the albumen. Ordinarily, how-

ever, the disease can be checked before any such trouble arises. Milk, containing, as it does, both proteids and carbohydrates, should be prohibited in all forms of intestinal fermentation. Nursing babies, with severe summer complaint, should be taken from the breast. All food administered, of whatever type, should be aseptic. In addition to regulating the diet on the foregoing principles, the treatment should include laxatives and intestinal antiseptics. Opium is contraindicated, except in persistent acid fermentation, which threatens to produce anatomical lesions.—*London Medical Recorder*.

GLUCK ON THE PREVENTION OF THE TOXIC EFFECT OF COCAINE.

In eye and ear practice Dr. Gluck has found the toxic effect of cocaine, especially in adults of middle life, a great drawback to its use. Another inconvenience is that simple solutions of cocaine do not remain stable. After twenty-four hours a solution begins to lose its anæsthetic properties, and in a few days he finds that it becomes useless. After a series of experiments the author has found that by combining phenol with cocaine the objectionable features are removed. For over a year he has used a solution made according to the following formula, since which he has not observed any toxic effects of the drug: R. phenol, gtt. ij; aqua destillata, 3j; shake until solution is perfect, then add cocaine hydrochlorate, gr. x. The advantages Dr. Gluck claims for this combination of cocaine and phenol are: toxic effects prevented; anæsthetic effect increased; absence of congestive reaction; decomposition of the solution prevented; and, lastly, solution rendered aseptic.—*London Medical Recorder*.

DRESSINGS FOR FRACTURES.

Dr. Treuthardt, of Lausanne, has lately described a method for treating simple fractures, practiced by him with uniform success during the last twelve months. It consists in immobilizing the fragments by means of a sufficient quantity of cotton-wool with several thin, narrow and flexible splints, the whole being fixed by a flannel roller or handkerchiefs. The dressing is removed in two or three weeks, according to the severity of the injury. The chief advantages claimed for the plan are these: owing to its elasticity and compressive action, the dressing reduces effusion to a minimum, while leaving the circulation quite free. Hence the fragments, not being bathed in serosanguinolent effusion, unite much more rapidly than under ordinary dressings. Moreover, while fixing the fracture as effectually as an absolutely immovable apparatus, the dressing never causes any cutaneous lesions, and allows easy inspection of the injured limb.

SOCIETY PROCEEDINGS.

Philadelphia County Medical Society.

Stated Meeting, June 25, 1890.

DR. EDWARD JACKSON read a paper on

THE RECOGNITION OF EYE-STRAIN BY THE
GENERAL PRACTITIONER.

The attempt to give relief from the symptoms of eye-strain by a careful trial, seriatim, of one's favorite sedative, tonic, and alterative prescriptions, followed by experimentation with the formulæ of great professors found floating on the surface of medical journalism, does not usually bring much comfort to the patient or credit to the doctor. And that it is so frequently persisted in until the patient deserts his so-called medical adviser, and of his own notion takes his chances with the specialist or the charlatan, seems to argue an inability to recognize the connection of this group of symptoms with their cause. The worst evil of specialism is ignorance and indifference as to other departments of medicine; one of the most aggravated manifestations of this evil is the expressed indifference of so-called "general practitioners" toward the anomalies and diseases of the eye.

From time to time efforts have been made by ophthalmologists to secure a more general recognition of eye-strain on the part of the mass of the profession; but usually these efforts consisted in a recommendation of some special instrument or procedure of diagnosis, as the refraction ophthalmoscope, or the shadow-test, or a set of trial lenses, reduced in size and price to the supposed needs of the mass of the profession. If it were really necessary to apply such special means of diagnosis in order to recognize the presence of eye-strain, there would be little prospect of its early general recognition. But it is frequently recognized by the patient himself, and the ophthalmic surgeon finds in the general rational symptoms quite sufficient grounds for a provisional diagnosis; and if the mind is clear from preconceived hypotheses as to the causes of the symptoms, tending to divert attention from their real origin, there is no reason why any one respectably qualified for general practice of medicine should not be able to make a provisional diagnosis with sufficient certainty to serve for the basis of further investigation and treatment, in the great majority of cases, without resort to any special method of examination whatever. Of course, the ophthalmoscopic evidence of ametropia, when it can be obtained, is very valuable as confirming such a diagnosis; and I do not underestimate the value of the ophthalmoscope to the general practitioner, for I cannot regard any one who is unable to use the ophthalmoscope as properly qualified for general practice. But I do say

that inability to measure refraction with the ophthalmoscope is no reason for failing to recognize eye-strain.

The patient suffering from eye-strain comes with a certain history and certain complaints, which, carefully considered by the light of a very moderate knowledge of the subject, clearly indicate the cause of the trouble, in the great majority of cases. The symptoms in question may be considered separately.

Impairment of vision, either quite temporary, more prolonged, or quite permanent. A very characteristic form of temporary impairment of vision is that due to sudden relaxation of the accommodation. This occurs when the ciliary muscle has long been overtaxed, and especially in the latter hours of the day, when it is nearly tired out. The patient notices that the print or other near object on which the attention is fixed suddenly becomes entirely blurred, compelling the cessation of the eye-work. After a moment, however, the power of again focussing the object returns, and work can be resumed. The patient is apt to close his eyes for an instant, and, perhaps, rub them, and on again opening finds the sight again restored. If the eye-work is continued, the failure of accommodation recurs, to again rapidly pass away; and keeping on with the eye-work, these periods of inability to see become more and more frequent, until, finally, they greatly interfere with the continuance of the work, or quite prevent it. This form of impairment affects only the vision for near work.

Another temporary impairment is that due to spasm of the accommodation; it affects distant vision only, and is noticed chiefly by those whose distant vision is otherwise pretty good. It comes on after prolonged straining of the eye, usually for near vision, and lasts until the eye has gotten well rested. It is a valuable danger signal, and should secure cessation from the work causing it until it has given place to normal relaxation. Permanent impairment of vision is brought about when eye-strain causes myopia or decided permanent damage of the choroid and retina.

Headache and aching of the eyes—Eye-strain should be the first thought suggested by any complaint of headache, for in our day and civilization it is by far the most common cause of that symptom. It enters as a factor into the causation of nearly all headaches not due to pyrexia, toxemia, or diseases of the brain or its membranes. The simple existence of headache, therefore, should suggest eye-strain; but frequently a careful inquiry as to the manner and time of occurrence of the attack, and the location of the severest pain, will be almost conclusive as to the origin of the trouble.

Often it comes on whenever the eyes are used, and is absent when they have had a proper period of rest. The occasions of most severe re-

quirement in the direction of eye-work are the doing of anything requiring accurate near vision, taxing both the accommodation and the convergence; or traveling, shopping, attendance at public gatherings, which entail more use of the eyes than the patient is at the time conscious of, and often under unfavorable conditions.

Very often the chronological connection between the use of the eye and the occurrence of the ache, although perfectly certain and evident when once it has been observed, has never been noted by the patient until his attention has been directly called to it. Even when the headache seems constant and quite uninfluenced by variations in the amount of eye-work, it may be due wholly to eye-strain.

In hyperopia in young people the accommodation is in excessive use so long as the eyes are open and the attention fixed on any visible object; and hyperopia is the most common cause of constant headache. The writer was formerly subject to a constant headache whenever confined to the house, and regarded it as caused by breathing vitiated air, until it was quite cured by the correction of his hyperopic astigmatism. Many persons have the same idea as to the causation of the headaches they always experience when attending the theatre or other place of public amusement, and which are really due to eye-strain. Others ascribe these headaches, and those experienced in traveling or shopping, to exhaustion. This is nearer the truth, only they commonly have in mind a condition of general exhaustion, whereas it is largely one of local exhaustion of the special nervous apparatus concerned in the act of seeing.

The *location of the aching* is of some significance. Generally it is frontal, often described as beginning in the eye, or just back of the eye, or through the temples. Frequently it extends to the occipital region, and may sometimes be felt principally or wholly in that region. Headache most severe in the vertex or confined to that region is probably not very common from any cause, but from eye-strain it is almost unknown. Often the headache is more severe on one side of the head than the other. Sometimes it is entirely confined to one side, but usually it is bilateral.

Those more or less regularly periodical headaches, known as nervous or sick headache, migraine, or, when confined to one side of the head, hemicrania, are in many cases set up by eye-strain and relieved by its removal. Attacks of this kind are frequently ushered in by certain interference with vision and subjective sensations of light, affecting a part or the whole of the visual field, and known as ophthalmic migraine. These visual disturbances are simply a part of the general "nerve-storm," and it is not certain that they especially indicate the origin of the attacks to have been eye-strain.

Congestion, irritability, or inflammation of the eyes and their appendages should always suggest the suspicion of eye-strain. A single attack or manifestation of this kind has no especial significance, but repeated attacks of inflammation, or prolonged congestion or irritability, are exceedingly suggestive of a continuing cause; and the most common of these is the one now under discussion. No case of chronic inflammation of the margins of the lids, or of recurring conjunctivitis, or repeated styes, has justice done to it until it has been carefully investigated for eye-strain. Persons at the period when they begin to feel the effects of loss of accommodation in presbyopia or absolute hyperopia, suffer from repeated attacks of conjunctivitis, which they commonly ascribe to "taking cold in the eye," but which are cut short by use of the appropriate lenses, and which, if unchecked, would tend to establish a chronic catarrhal condition which is a chief discomfort in the lives of many elderly people.

Of course, these conditions of ocular congestion and inflammation will be recognized by the usual symptoms of redness, swelling, and itching, smarting, or burning pain. They often require especial local treatment, and will quite often be temporarily cured by this alone; but if the underlying cause is not removed, they show a strong tendency to recur indefinitely, or until the accommodation is so far lost that the temptation to strain it is removed. It should be noted that usually headache and these local inflammatory conditions are not presented by the same case. They may coexist, but, more commonly, if one is decidedly present, the other is absent.

So far nothing has been mentioned for the diagnosis of eye-strain but the facts ascertained by questioning the patient, and from simple inspection of the eye. If, now, the physician's office contains—what every general practitioner's office should contain—a card of test-letters for accurately ascertaining the distant vision, and a card of fine print for ascertaining the near point of the eye, additional valuable evidence is easily obtainable. The trial of the distant vision will give indication of any considerable degree of myopia or astigmatism. But it must always be borne in mind that troublesome ametropia may be present without preventing perfect distant vision. The position of the near point, if farther from the patient's eye than his age would indicate, is pretty good evidence of strain of the accommodation. Evidence of strain of the external muscles of the eye, heterophoria, can be obtained by simply getting the patient to keep his eyes fixed on some object, near or distant, and covering one eye; then noting whether the covered eye deviates from its position of fixation, and especially whether it makes a quick movement to return to that position when it is uncovered.

Briefly to recapitulate, the common symptoms

of eye-strain are: Certain forms of impairment of vision.

Headache, which is to be studied with reference to the times of its occurrence and the parts of the head to which the aching is referred, with careful discrimination between the patient's facts and his theoretical explanation of them.

Chronic or repeatedly recurring congestion, or inflammation of the eye or its appendages.

And if to these symptoms are added the results of the simple tests of near and distant vision, and evidence of tendency of the eyes to deviate from their normal position when covered, a very good basis is furnished for the probable or provisional diagnosis of eye-strain, without recourse to any special apparatus or unusual diagnostic procedure. And in view of these facts there is no justification for the general practitioner who fails to recognize most of the numerous cases of eye-strain with which he is brought in contact.

DR. GEORGE M. GOULD: Certainly, nothing Dr. Jackson has advanced in his excellent paper calls forth controversy or criticism; but I think a word may be added as to certain other symptoms not alluded to by him, that may sometimes put the general practitioner on the track of an eye-strain reflex. When eye-strain is sufficiently severe to set up a reflex neurosis, sleepiness is a common symptom, brought on by persistent reading or writing. The patient cannot understand why he grows so drowsy. A more important trouble is one I at first advanced somewhat doubtfully, but now I am growing perfectly convinced is a genuine result of ametropia. I allude to troubles of appetite and digestion. Few patients with severe or long continued eye-strain that do not complain of anorexia, fickle appetite, or some dyspeptic trouble. Mothers frequently call such girls "pickers." Explain the mechanism of this reflex as we may, I am sure it is a fact, and that a malnutrition often results that may end in anæmia, and many different forms of nervous abnormality. I have had a large number of such patients regain long-lost appetite after putting on glasses, and regain ten to twenty pounds of flesh within a month or two. Nervousness and choreic movements, even genuine choreas, are traceable sometimes to the same causes. I had one patient who wore the right shoe out in a few weeks, and who had a habit of bursting out crying or into a rage at a trifle. She had been treated for chorea for years at one of our best hospitals. All symptoms have disappeared for two years, upon correction of her hyperopic astigmatism. I could cite several other cases.

I should like, also, to call attention to car-sickness in connection with eye-strain. I have had eight or nine cases of this kind, and by glasses all have been relieved of their car-sickness. One was that of a gentleman who every journey had car-sickness. While he had the mydriatic in

his eyes he went to Washington, and suffered no inconvenience whatever. Subsequently, after he had glasses, he made a trip to St. Paul without any of the former trouble. In the last two days I have had two cases—one that of a girl who could not ride a short distance in the street cars without vomiting. I found a decided degree of hypermetropic astigmatism. With the mydriatic in her eyes she rode home without her usual trouble.

A strange thing with reference to eye-strain is, that it often exists to an exceptional degree without showing any symptoms in the eye. The patient will often say that the eyes are perfectly good, and have never caused any irritation. The reflexes seem to settle in some other place. This is an interesting pathological and physiological question.

With reference to testing the eyes by the general practitioner, it has struck me that a simple plan, which could be readily carried out, would be as follows: Have two test-cards, so that the patient will not learn and remember the letters. Let him first test distant vision with one of the test-cards; then let him instil homatropine. This will give perfect paralysis in three-quarters of an hour. Then retest with the other card. Then, if vision has decreased, there is eye-strain, due to astigmatism or hypermetropia. Another practical point is that, if the patient is suffering with headache, he will be relieved by the application of the mydriatic. It is as to the existence of hyperopia and astigmatism that we want to know. Myopia rarely produces eye-strain.

DR. MARY E. ALLEN: I would ask if, in these cases, the condition of the recti muscles has not something to do with the symptoms? In my own case, I suffered eye-strain for a long time, and insufficiency of the recti muscles. I had one symptom which I have never seen described, and that is, a feeling as though a blow had been struck against the eye. My explanation of this is that, by a spasmodic contraction of the straight muscles, the elastic eyeball is suddenly drawn with force against the back of the orbit, giving the sensation of a blow. I had this a long time before wearing glasses, but very seldom since.

DR. JACKSON: My paper simply refers to the recognition of eye-strain. I purposely considered only those symptoms most generally present, and had in mind the great mass of cases, not the exceptional ones, which do, in the aggregate, constitute a very large number, but still are proportionately few. The other symptoms which have been mentioned, and many others, might be referred to as due to eye-strain, but they do not occur in the large number of cases, and can hardly be regarded as of general importance in making the probable diagnosis.

I have used the term eye-strain, not as a synonym of ametropia, because we may have ametropia without eye-strain, or eye-strain without ame-

tropia, if requirements are put upon the eye too great for its capacity. You can have it without any ametropia, or weakness of any extra-ocular muscle or group of muscles. It is to the question of eye-strain as isolated and separated from ametropia that I refer. Of course, in a very large proportion of cases, the relief of the eye-strain comes from correction of the ametropia.

In connection with that correction, I should like to say one thing with reference to a remark made by Dr. Gould—that is, if myopia were present, it need not be considered. In my experience, myopia may cause severe eye-strain. There is the strain of convergence, and any inequality between the two eyes in the amount of myopia—and myopia is usually unequal—is very likely to cause eye-strain. The discovery of myopia would not, to my mind, rule out the existence of eye-strain.

New York Academy of Medicine.

SECTION ON ORTHOPÆDIC SURGERY.

Stated Meeting, March 21, 1890.

V. P. GIBNEY, M.D., CHAIRMAN.

DR. JOHN RIDLON presented a case for diagnosis.

DR. GIBNEY considered it a case of cervical rotary scoliosis, with a cyst over the scapula. He had seen one or two cases of cystic tumor in this region; and the diagnosis of scoliosis was made by the position of the right shoulder, the drawing of the head to that side, and on the patient's bending forward, a deviation of the spine to the right.

DR. SAMUEL KETCH agreed in the diagnosis of rotary lateral curvature, which he thought was congenital.

DR. L. PUTZEL found some enlargement of the spine of the scapula, and muscular spasm of all the muscles inserted into the inner border of the scapula.

DR. A. B. JUDSON thought there was evident scoliosis.

DR. W. R. BIRDSALL was of the opinion that most of the deformity was the result of muscular spasm. An electrical examination ought to settle the question.

DR. A. M. PHELPS said that in a growing child, such a condition of scoliosis was often secondary to muscular spasm.

Dr. Ridlon said that he had been unable to obtain any history which would account for an irritative lesion at birth; and he had only just learned that the child had been etherized by Dr. Gerster two days ago, and that the swelling had entirely disappeared.

DR. T. HALSTED MYERS presented a case of
DOUBLE CONGENITAL MALFORMATION AT THE
KNEE, WITH HYPEREXTENSION, AND TALIPES.

The patient was born at term, after an easy

labor, by a breech presentation. The feet had been closely applied to the head, and the quantity of liquor amnii had been normal. The marked flexion of the thighs had been gradually overcome at the end of eight months; but at the age of 16 months, the thighs could not be extended beyond the straight position; both legs were hyperextended to 140° ; there was equino-varus, marked on the left side, and moderate on the right. Neither patella could be felt. The inter-condylar grooves were shallow; the tibiæ glided forward into partial dislocation, and there was marked genu-valgum, with abnormal lateral mobility at the knee. The body was otherwise normal; and there were no evidences of cerebral defect. The muscles responded well to the Faradic current, but in a less degree on the right side. The flexors of the thigh were in constant active contraction, and the condition of the posterior leg muscles seemed to be one of structural change. The deformity had been considerably reduced in two weeks by means of a brace, which maintained flexion of the knee.

DR. MYERS presented brief notes of several cases which had been already reported by some of the members of the Section. The absence of cerebral symptoms in these cases, pointed to the cord as the seat of the lesion. The muscular spasm seemed to disappear about the third year, or even earlier; and the prognosis, as regards the usefulness of the limbs, was very good. There was nothing in these histories, however, to show that the foetus had maintained the position found at birth. This position approximated the insertions of the anterior thigh group and the posterior leg group, which might very easily account for the structural changes in the muscles, and consequent shortening and deformity. Nor was it surprising that the patella, which was practically a part of the quadriceps tendon, should share in this mal-development; but the character of the labor itself ought to have but little influence, as the cartilage of the patella appeared in the third month of foetal life.

DR. R. H. SAYRE related the history of a similar case, and exhibited photographs showing the condition immediately after birth, and again six months later. The labor and the quantity of liquor amnii had been normal, and no cause could be assigned for the condition. At the present time, the leg could be flexed on the thigh to about 45° , and extension was possible only to a straight line. The shortening was $\frac{3}{4}$ of an inch. No patella had yet been found.

DR. KETCH said that in a collection of fifty-six cases of congenital dislocation, reported by Dr. Hubbard and himself, there was only one congenital dislocation of the knee, and this was unilateral. The literature of the subject was still very meagre, Noble Smith being the only author he had found, who spoke of the condition at length.

The treatment which this author advocated, had yielded uniformly good results.

DR. LE ROY W. HUBBARD, by invitation, presented the report of

A CASE OF POTT'S PARAPLEGIA.

The case was treated by suspension, after the method suggested by Motchoukowski. It was one of those untractable ones that had resisted ordinary methods of treatment. Drs. Ketch and Hubbard employed daily suspension for a few minutes, and a decided daily improvement was noticed within a month, but a complete cure had not been established up to the time of the report.

DR. PUTZEL said that his pathological studies had led him to believe that the majority of cases of Pott's paraplegia were not due to pressure, but to a transverse myelitis; and his experience with the treatment by suspension had taught him to consider it a method which was, at best, only a temporary relief. Very rapid improvement often followed many methods of treatment. Large doses of iodide of potassium had not yielded him very satisfactory results. It was important to remember that the disease showed a strong tendency to spontaneous recovery.

DR. BIRDSALL thought that where Pott's paraplegia was due to myelitis, the disease was fatal; but many cases were due, not to a myelitis, but to irritation and pressure on the anterior or posterior roots of the nerves in their passage through the foramina. Among the various theories which had been advanced concerning the action of suspension, he thought that the most plausible one attributed the beneficial action to a slight separation of the vertebræ, with consequent improvement in the circulation of the affected parts, particularly the nerve roots. This was what might be expected from our knowledge of nerve-stretching; and on this account, he thought the method somewhat dangerous. For many months after Charcot called attention to the method, the literature of the subject was very extensive, but more recently, it had become quite scanty. It was particularly strange that these early investigators had not furnished any later reports.

DR. L. C. GRAY said that, excluding those cases which were complicated by organic lesions of the cord, he thought that the etiology of Pott's paraplegia could be explained by reflex causes. Nerve-stretching in this disease was a very different thing from what it was in locomotor ataxia. The latter disease had a very complicated pathology, and embraced several distinct varieties. It was a very significant fact, that the results claimed by Charcot had not been obtained by other observers. He did not think that the treatment by suspension, when properly managed, was dangerous; and where the paraplegia was of reflex origin, he would look for temporary relief, and in milder cases, even a cure was not impossible.

DR. W. R. TOWNSEND reported two cases which he had treated by extension in bed, according to the method recommended by Wm. J. Fleming in *The Lancet* for 1889. He had modified the arrangement for extension, by using a jacket around the pelvis, with straps passing down on each side. Both cases had received large doses of iodide of potassium in addition to extension; and both showed the improvement noted in Dr. Hubbard's case.

DR. RIDLON stated that he had made use of large doses of iodide of potassium, the actual cautery, and of horizontal traction while in bed; but he had been unable to see any favorable modification of the disease by any of these methods. He now kept his patients on their backs, and waited for them to get well. One case recovered perfectly after three years.

DR. KETCH said that he had suggested the use of suspension in the case reported by Dr. Hubbard, after the paralysis had lasted for about three years, and had not been improved by recumbency, or the use of iodide of potassium.

DR. R. H. SAYRE said that the treatment of Pott's paraplegia by suspension had been practiced as long ago as 1828, by J. K. Mitchell, of Philadelphia. Suspension failed to give relief when carried to excess, and it was dangerous if injudiciously applied. These cases should not be left untreated, for their chances of becoming permanently paralyzed were thereby increased. Constant traction by means of the "jury mast," and traction with recumbency, were both very useful methods. By making use of extension with the patient in the "wire cuirass," his father had been able to employ traction with recumbency without depriving the patient of the benefits of fresh air.

DR. PHELPS considered that the employment of suspension at a period when the disease was still active, was bad practice; and the great majority of cases recovered, if the spinal column were only fixed.

DR. HUBBARD did not think that pressure on the nerve roots could be of common occurrence; for sensory symptoms rarely appeared, and then only in the later stages.

DR. A. B. JUDSON read a paper entitled

A CRITICISM OF WILLETT'S OPERATION FOR TALIPES CALCANEUS.

He stated that in this affection, the deformity was of less importance than the disability, which prevented the patient from resting on the toe in walking—a disability which Mr. Willett sought to remove by shortening the tendo Achillis. The writer demonstrated that the tension on the heel-cord greatly exceeded the weight of the body; and expressed the opinion that the tendon, shortened by operation, would not long endure the strain without yielding. He advocated the mechanical

treatment of this disability, and presented a brace, which was easy to apply, convenient to wear, and inexpensive.

DR. W. E. WIRT, by invitation, gave a mathematical demonstration, showing that Dr. Judson, in his calculations, did not make any allowance for the action of the other muscles; and that when these were considered, it was found that the tension sustained by the tendo Achillis was at no time more than 1.4 times the weight of the body.

DR. ROYAL WHITMAN, by invitation, read a paper on the *Rational Treatment of Flat Foot*, and showed some plaster casts of cases he had treated.

DR. WILLY MEYER presented *Two Cases of Flat Foot*, which he had treated by supramalleolar osteotomy, and showed photographs and casts illustrating the condition of the patients, before and after the operation. He considered the method a most rational one; for it required the patient to step upon the outer border of the foot, so that the weight of the body was transmitted through the cuboid, instead of through the scaphoid bone. Dr. Whitman's results were excellent; but they had been obtained in comparatively young subjects, after six months of treatment. The method which he advocated, would secure permanently good results in as many weeks.

DR. R. H. SAYRE remarked that Mr. Golding-Bird, who was the first to do these operations, found less frequent occasion than formerly to resort to this method, as he was able by non-operative measures to relieve pain and, in great measure, to remove the disability.

FOREIGN CORRESPONDENCE.

LETTER FROM LONDON.

(FROM OUR OWN CORRESPONDENT.)

Report concerning the Cases of Poisoning in India—An Interesting Case of Suppurating Dermoid of the Right Ovary—Diuretin—Miscellaneous.

Dr. T. D. Collis Barry has furnished an interesting report concerning the cases of poisoning in India, of which it is to be regretted there are many. In fact, one of the railway companies in India recently published a notice warning unsuspecting travelers against wretches who go about robbing those to whom they have administered some narcotic. Dr. Barry, however, has dealt with the more serious aspect of poisoning; that is to say, cases in which it is suspected poison has been administered with a view to murder. Of these there were 170 last year, as compared with 182 the year before, and 159 in 1887. Poison was discovered in sixty-six cases, a smaller percentage than usual, of which thirty-three were arsenic, twenty opium, five powdered glass, three datura, three mercury, and two nux vomica. Some curi-

ous cases which were inquired into are mentioned, amongst others a blacksmith at Salara, attached to the Ninth Regiment, stated that some poison (corrosive sublimate) had been mixed with his food by his assistant, the assistant wishing to remove his senior with a view to promotion. After careful inquiry, it was proved that the poison had been added to the food by the blacksmith himself, with a view to accusing the assistant. Pounded glass has been for some years tried, but it appears to have met with little success, as its coarseness and grittiness have betrayed its presence to the intended victim. Only one case is recorded in which powdered glass was successful in taking life, and death occurred in forty-eight hours. Dr. Barry says that arsenic has always been the poisoner's favorite material, opium enjoying the next place, the figures being last year 50 per cent. and 31 per cent. respectively, and this has been the average during the past ten years. A very favorite way of administering arsenic is in the form of sweetmeats. In one case a sweetmeat was analyzed weighing 860 grs., and from it was obtained no less than 610 grs. of arsenic. This interesting trifle was given to a police Sepoy by a man with whose wife the Sepoy had run away. A singular case is on record of five patients in a leper hospital who were found to be suffering from the effects of poison, and on investigation it was discovered that some tamarinds they had eaten contained 12 grs. of arsenic to the lb., while some sweetmeats they had also consumed showed the presence of the poison to the extent of 12 grs. to the oz. The would-be murderer, in this instance, was a leper who wished to dispose of another leper in order that he might marry the latter's wife, and as he was unable to get the man by himself, he coolly decided to poison the lot.

Dr. William Duncan has had under his care, at the Middlesex Hospital, an interesting case of suppurating dermoid of the right ovary, which had opened into the bladder. It was diagnosed as being a suppurating pelvic cellulitis, and Dr. Duncan cut down upon the abdominal swelling, with a view of making a large counter-opening into the abscess. This is his invariable custom when a pelvic abscess has opened into the bladder, as otherwise, owing to imperfect drainage, the case drags on indefinitely, and cystitis aggravates the sufferer's condition; whereas, when a free exit is made for the pus elsewhere, the vesical opening soon closes. In this case, instead of opening the sac of an abscess, Dr. Duncan cut into the peritoneal cavity, and found that the case was one of dermoid tumor of the right ovary. Upon passing the hand into the pelvic cavity, the growth proved to be so densely adherent to the uterus, bladder, and pelvic walls, that he decided it would be unjustifiable to attempt its removal, so the tumor was stitched to the edges of the incision in the abdominal wall, and ten days later

an opening was made into it. The patient quickly put on flesh, and soon only slight traces of pus were to be found in the urine. Later, some bagging of pus taking place in the most dependant part of the sac, the patient was placed under an anæsthetic, with a view of making a counter-opening into the vagina. The sound, however, in the bladder passed over to the right side of the pelvis, making it appear that it would be necessary to cut through this viscus in getting to the abscess. The attempt was consequently given up. The woman rapidly becoming worse through the pyrexia and rigors, it was determined, at all costs, to get an opening into the vagina. This was fortunately effected without wounding the bladder, and from that date the patient made an uninterrupted and rapid recovery. The case showed the important fact that an ovarian tumor may disappear if free drainage be made through it.

Diuretin is the name of a new preparation which has lately been introduced into clinical practice. Caffeine, both *per se* and in saline combination, has for some time past achieved a certain reputation as a diuretic, but nevertheless its action is not always a very reliable one. Theobromine, on the other hand, besides being until recently far more costly than caffeine, is practically almost insoluble in water, although it acts more powerfully upon the kidneys than the former alkaloid. Diuretin purports to be a species of double salt; in fact, a salicylate of theobromine and sodium, and is so readily soluble that it dissolves in half its own weight of water, and retains this large proportion even after cooling. The adult dose recommended is about 15 grs., but this quantity may be repeated five or six times in the course of the twenty-four hours.

It is stated that a medical man claims to have discovered a method of rendering tobacco harmless to the mouth, heart and nerves without detriment to its aroma. A piece of cotton wool, steeped in a solution of 5 to 10 per cent. of pyrogallie acid, inserted in the pipe or cigar holder, will neutralize any possible ill effects of nicotine. In this way not only may the generally admitted evils of smoking be prevented, but cirrhosis of the liver, headache, and furring of the tongue may be avoided. Citric acid, which was recommended by Vigier for the same purpose, has the serious disadvantage of spoiling the taste of the tobacco.

On July 4, an interesting ceremony took place at Marlborough House, when the Princess of Wales presented certificates of membership of the National Pension Fund for Nurses to representatives of the first thousand who joined the fund. The number of nurses present was about 700, and they were arranged in companies under the trees in the gardens behind Marlborough House. All the principal London, and many of the Provincial hospitals were represented, while here and there

were to be seen the special uniforms worn on foreign service. The royal party appeared on the steps leading from the conservatory shortly before 1 P.M., and as each nurse passed the steps she received her certificate from the hands of the Princess. Each certificate had been signed by the Princess of Wales, and stated that it was presented in testimony of the fact that the recipient was one of the first thousand nurses who joined the fund, and thus became one of the founders who secured £25,000 as the nucleus of a permanent fund for the benefit of the nurses of the British Empire.

G. O. M.

NEW INSTRUMENTS.

A NEW DILATOR FOR THE TREATMENT OF OBSTRUCTIVE DYSMENORRHOEA.

Read in the Obstetric Section of the Tenth International Congress, at Berlin, August, 1890.

BY THOMAS MORE MADDEN, M.D., F.R.C.S. ED.

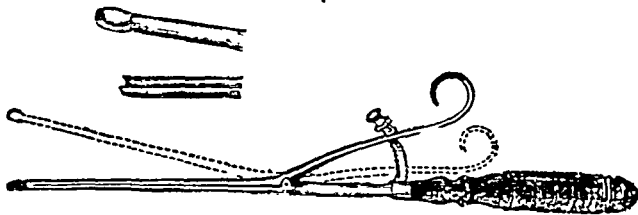
Physician to the Hospital for Sick Children, Dublin; Obstetric Physician and Gynecologist Mater Misericordiae Hospital; Examiner Conjoint Board Royal College of Surgeons and Apothecaries' Hall, Ireland; Consultant National Lying-in Hospital; ex-President Obstetric Sections of the Royal Academy of Medicine, Ireland, and of the British Medical Association; formerly Vice-President British Gynecological Society; M.D. *Honoris Causa* Texas Medical College, Etc.

The following is an abstract:

In the recognition of obstruction from cervical stenosis as the chief cause of dysmenorrhœa, will be found the key to the pathology and successful treatment of this condition in the great majority of cases. Thus in my hospital practice during the past 20 years, nearly 11 per cent. of sterility similarly caused have come under observation in a total of nine thousand gynecological cases. Of all the ailments of female existence, few give rise to more persistent suffering, or produce more disastrous effects on the general health, and even on the cerebro-nervous system, or on the moral constitution of the patient, than does well-marked obstructive dysmenorrhœa. The latter consequence is more especially evident, in many cases of alcoholism, which in women may very frequently be dated from their first painful menstrual period, for the relief of which stimulants are too often improperly administered and repeated in increasing doses, until finally, in many cases, the victim of dysmenorrhœal alcoholism becomes a habitual, and, perhaps, an incurable drunkard.

It is not my purpose here to refer to the successive improvements which have since been effected in the methods of carrying out the gradual dilatation of the cervical canal, since the introduction into practice by Simpson and Sloan of sponge tents or laminaria bougies for this purpose. No greater improvement has occurred in

our branch of surgery than the replacement of these oftentimes unsatisfactory, possibly hazardous, or even fatal, and always painful procedures by the more effective means now at our disposal for the rapid expansion of this canal. Of these, perhaps the best known and most generally employed are either Hegar's, Duke's, or Lawson Tait's dilators. I now desire to call attention to another instrument which I have designed for the same purpose, and which, I venture to hope, may be found to supply a want still recognized by the gynecologists—namely, that of a reliable and effective means of securing the rapid and permanent dilatation of the cervical canal in the treatment of stenosis giving rise to the morbid conditions now under consideration. This instrument differs from other dilators in several respects, and, above all, in one which I consider



most important—viz.: in producing expansion of the canal from within outwards—in other words, in imitating the natural process of expansion from the uterine cavity downwards to the os uteri; whereas most other dilators, such as Hegar's, etc., act in the opposite direction. In my own hands the utility of this instrument, the expansion effected by which may be measured by the affixed index, has been fully tested in a very large number of cases of sterility and dysmenorrhœa in hospital and private practice. I may add that my dilator, which does not occupy more room than the ordinary sound when introduced, may also be used with advantage for the dilatation of the female urethra in many cases in which this procedure is indicated. This instrument has been carefully made in accordance with my directions by Messrs. Arnold & Sons, West Smithfield, London.

MISCELLANY.

ANTIVIVISECTION BITTERNESS.—The Society for the Protection of Animals from Vivisection recently held its annual Spring conference in London. The war-cry this year was "Pasteurism and Crime," and Canon Wilberforce is reported to have rejoiced in the fact that the movement to found a Pasteur Institute in England had been defeated by the society's method of placarding the city with large posters, containing the list of those who had died after treatment by the Pasteurian system. Many others indulged in bitter denunciation of both vivisection and Pasteurism, as being the means of brutalizing the otherwise honorable and useful profession of medicine.

LETTERS RECEIVED.

Dr. J. M. Batten, Pittsburgh, Pa.; Dr. G. O. Mead, Newmarket, Eng.; Dr. C. W. Hitchcock, Detroit, Mich.; W. T. Keener, Dr. J. C. Hoag, Chicago; Copeland Townsend, W. H. Schieffelin & Co., Dr. S. T. McDermith, Thos. Leeming & Co., I. Haldeustein, Dr. R. B. James, F. M. Lupton, J. H. Bates, Dr. J. A. Cutter, Dr. S. T. Armstrong, Dr. W. R. Townsend, E. Steiger & Co., New York; The Upjohn Pill & Granule Co., Kalamazoo, Mich.; Battle & Co., Provident Chemical Works, St. Louis, Mo.; John Parmenter, Buffalo, N. Y.; Dr. W. H. Davies, Maquoketa, Ia.; Dr. L. G. North, Tecumseh, Mich.; Dr. E. Chenery, Dr. F. S. Parsons, Arena Pub. Co., National Typewriter Co., Boston, Mass.; Dr. S. C. Newlin, New Salem, Ind.; Dr. L. B. Grandy, Oxford, N. C.; Dr. D. B. Collins, Madison, Wis.; Dr. E. L. Jones, Florence, Ala.; Cincinnati Sanitarium, College Hill, O.; Dr. M. M. Lively, Hardyville, Ky.; Dr. H. M. Mixer, New Hampton, Ia.; Dr. F. Humbert, Alton, Ill.; Dr. H. H. Witherstine, Rochester, Minn.; Dr. W. Wyman, Washington, Dr. H. Judd, Galesburg, Ill.; Thos. F. Goode, Buffalo Lithia Springs, Va.; Dr. J. G. Carpenter, Stanford, Ky.; Dr. T. B. Greenley, West Point, Ky.; Allen & Yates, Buffalo, N. Y.; Sharp & Dohme, Baltimore, Md.; Dr. A. H. Hay, Racine, Wis.; Dr. D. Barrow, Lexington, Ky.; I. D. Holden, Stockton, Cal.; Dr. T. Legaré, Charleston, S. C.; P. Blakiston, Son & Co., Philadelphia; Dr. H. A. Clarke, Rockford, Ill.; Dr. E. S. Elder, Dr. L. H. Dunning, Indianapolis, Ind.; Dr. W. A. Dietrich, Lookout Mt., Tenn.; Dr. Millard G. Peck, Dr. J. A. Robison, Chicago; Dr. H. B. Baker, Lansing, Mich.; Dr. E. A. Curry, Danville, Pa.; Dr. A. B. Patterson, Atlanta, Ga.; Dr. J. D. Scouller, Pontiac, Ill.; Dr. C. Montezuma, W. Shoshone, Nev.; Dr. N. E. Landon, Newark, N. Y.; Johnson & Johnson, New Brunswick, N. J.; Dr. A. L. Hummel, M. J. Lawson, Philadelphia; Hôpital Saint-Louis, Paris, France; Dr. J. L. McComas, Oakland, Md.; Dr. A. S. Kinnamann, West Salem, O.; Dr. J. H. Van Eman, Kansas City, Mo.; Dr. Tosubour, Beatrice, Neb.; College of Physicians and Surgeons, Keokuk, Ia.; Dr. J. A. Crook, Jackson, Tenn.; Dr. J. H. Baxter, Washington; Dr. D. M. Wick, New Hartford, Ia.; Dr. J. A. Brobst, Macungie, Pa.; Dr. B. C. Anderson, Beardstown, Ill.; Dr. S. O. L. Potter, San Francisco, Cal.; Dr. J. S. Marshall, Cleveland, O.; Dr. W. C. Owen, Coquille City, Ore.; Dr. W. H. Myers, Longwood, Ill.; McIntosh Battery & Optical Co., Chicago; Dr. J. G. Hanks, Rays Hill, Pa.; Dr. R. S. Davis, Pittsburgh, Pa.; Dr. D. B. Collins, Madison, Wis.; Dr. J. B. Mattison, Brooklyn, N. Y.; Dr. H. C. Jones, Decatur, Ill.; Dr. G. R. Wells, Livingston, Mont.; Dr. T. D. Crothers, Hartford, Conn.; Dr. Q. C. Smith, Austin, Tex.; Dr. C. E. Denison, Philadelphia; Dr. J. W. Stickler, Spring Lake, N. J.; Dr. T. H. Huzza, Atlanta, Ga.; Dr. J. W. Shively, Washington; Dr. L. D. Mason, Greenwich, Conn.; Dr. W. M. Knapp, Asylum, Neb.; Dr. U. O. B. Wingate, Milwaukee, Wis.; Dr. D. R. Walker, Reeses Mills, Ind.; Dr. J. G. Meachem, Racine, Wis.; Dr. W. W. Hester, Chicago, Ill.; Dr. J. F. Blair, Linwood, O.; Dr. R. P. Crump, Nitta Yuma, Miss.

Official List of Changes in the Medical Corps of the U. S. Navy for the Week Ending August 9, 1890.

Medical Director P. S. Wales, ordered in charge of the Museum of Hygiene, Washington, D. C.
Surgeon George A. Bright, ordered to the U. S. S. "Constellation."
Surgeon B. S. Mackin, detached from the U. S. S. "Constellation," and to Naval Hospital, Philadelphia, for medical treatment.
Surgeon E. Z. Derr, ordered to the U. S. S. "Minnesota."
Surgeon J. R. Waggener, detached from the U. S. S. "Minnesota," and ordered to the U. S. S. "Kearsarge."
Surgeon A. M. Moore, detached from the U. S. S. "Kearsarge," and granted three months' sick leave."

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ORIGINAL ARTICLES.

LYMPHOID HYPERTROPHY IN THE
PHARYNGEAL VAULT.

Read in the Section of Laryngology and Otology, at the Forty-first Annual Meeting of the American Medical Association, held at Nashville, Tenn., May, 1890.

BY JONATHAN WRIGHT, M.D.,
OF BROOKLYN, N. Y.

It is seventeen years since Meyer, of Copenhagen, first wrote his paper on adenoid growths in the naso-pharynx. Since then the importance of the subject has grown constantly more apparent in explaining not only a set of symptoms directly dependent upon their presence, but in the understanding of a series of sequelæ and of subsequent local changes. Since then also there has been such an abundance of papers more or less complete that there is little left to be said except in a discussion of details.

The subject is, however, of such importance that some points in regard to it bear repetition. One of these, which has not been dwelt on so much in this country as abroad, is the pathological anatomy and the ultimate change of the lymphoid tissue. There are few who have had the opportunity of examining the post mortem appearances of either the healthy or the diseased naso-pharynx. The mutilation necessary to expose the cavity is a barrier to such investigations in the great majority of cases.

The vault of the normal naso-pharynx in the infant is a comparatively smooth walled cavity. There are described and usually found four folds or slight elevations of mucous membrane running longitudinally or obliquely of varying length and size. They are known as the lateral and median folds of the pharyngeal or third tonsil. Between these folds are slight depressions which have been called the lateral and the median recesses. This median recess was described in 1842 by Mayer, of Bonn, as a bursa, but Ganghofner and Schwabach claim that the latter when it exists is a pathological formation, while Tornwaldt and some of his followers have adopted the view of the earlier anatomist.¹

This depression is most deeply marked where the vault joins the posterior wall, and by the pro-

jection of the heads of the Longus colli muscles is sometimes a quite deep recess. Such a one is shown in the colored plate taken from an article by Pœlchen, in a late number of Virchow's Archives, which I show you together with two specimens of the naso-pharynx of still-born children. I have lately seen a case in which the naso-pharynx presented much such a picture as that represented in the plate must have in life. The wet specimen has been hardening in alcohol and it is probable that the ridges and depressions have been largely smoothed out by the constricting action of the fluid. Nevertheless you can plainly see the median recess.

The mucous membrane in this locality is studied with the openings of tiny follicles leading to acinous glands. Hence Luschka has called this aggregation the pharyngeal tonsil. In childhood we have here a great richness of lymphatics. This lymphatic tissue is supported by trabeculæ of fibrous bands and is composed of a reticulum, as seen in thin sections, crowded with round lymph cells. This reticulum is however more apparent than real, being in fact the walls of lymph channels which when cut across in sections make a network. A fairly good understanding of this may be arrived at by cutting a thin cross section of a stalk of Indian corn. This naso pharyngeal structure is almost exactly similar to that of the lymph glands, the lymph nodes in the intestines, and the collection of tissue between the faucial pillars known as the tonsils proper. The surface is covered with ciliated cylindrical epithelium and the structure of the rest of the mucous membrane differs in no way from that found in other parts of the body. Sir Andrew Clarke² stated twenty-five years ago that the secretion of the normal pharynx was capable of turning starch into sugar, and the statement has more lately been advanced that this lymphoid tissue instead of acting exclusively as absorbents pours lymph into the naso-pharynx, which mixes with the food as it is masticated and swallowed.

It is with this lymphoid tissue that we are concerned, for by its hypertrophy we have formed the so-called adenoid growths of the naso-pharynx. The word adenoid is a misleading term as

¹For the literature and a short résumé of the subject see The Medical News, Sept. 7, 1889.

we naturally think of adenomata and of true tumors. Woakes calls them "Lymphoid papillomata," which seems to me much more appropriate. They are represented and described in the text books as stalactite-like bodies hanging down from the vault and sides of the naso-pharynx like berries.

For the gross appearance this perhaps would be a good enough description, if we had the space washed clean of mucous and the membrane spread out before our eyes. As a matter of fact they are matted together partly by inflammation and partly by mucous, so that if confined to the vault they appear in the rhinoscopic mirror as a tolerably compact mass, and when extending along the sides and on the posterior wall they narrow the cavity and give a rough, uneven appearance to the mucous membrane. Their surface is reddish gray, the gray predominating where the masses are larger, as in the vault, while the lateral walls have a red and inflamed appearance. They are friable and bleed freely. The feeling imparted to the finger has been likened not very accurately, and certainly not very elegantly, to that of a mass of angle worms.

Pathogenic bacteria, streptococci and staphylococci flourish in the perverted and abundant secretions of the parts, and stand ready with the proper preparation of the tissues from "colds," to set up otitis media, lacunar and suppurative tonsillitis.

Hardened in alcohol, sections of this mass, stained double present a very characteristic appearance. Near the surface it is almost exclusively made up of the fine reticulum with cells more densely crowded together in some places than in others.

In the rather thick section which I have here, four or five of these lymph nodes can be seen arranged near together close under the epithelium which is here, as it is normally, composed of cylindrical ciliated cells. As the sections are made nearer to the base of the growth the fibrous trabeculae become more abundant and in it here and there are numerous mucous glands and blood vessels. This appearance is to be seen in the larger sections. Numerous tiny loops of blood vessels dip down toward the apices of the mass, but none of any size are met with. Hence the hæmorrhage during operation though profuse at first is soon checked, the structure having but a small amount of fibrous tissue to hold the vessels open.

The lymphoid hypertrophy therefore of the pharyngeal tonsil is of the same nature as that of the faucial tonsils, the latter however having larger trabeculae and more fibrous tissue.

Like the tonsils and like the lymphoid tissues elsewhere, as in the intestines atrophy begins in

adult life, and as age advances we have less and less of it. When middle life is reached we have little or nothing left of previously enlarged pharyngeal and faucial tonsils but the fibrous tissue of the trabeculae. It is probable that even this diminishes in bulk.

If in these hypertrophies we had nothing enlarged but the lymphoid elements, this absorption as age advances would leave us practically a normal pharynx; but as a matter of fact the fibroid or cicatricial tissue is left behind and interferes with the function of the mucous membrane. The mucous glands instead of pouring out the normal fluid mucus, become clogged with a semi-fluid tenacious secretion which clings to the surface, forming thick crusts by the evaporation of its scanty watery part before it can flow down the sides of the pharynx and be absorbed. This tenacious secretion acts as a constant source of irritation to the parts rendered still more susceptible to inflammation by the cicatricial tissue.

I have seen some cases in which this fibroid tissue was so abundant that it seemed to have formed a sort of false roof to the naso-pharynx connected to the true vault by loose and scanty connective tissue threads. By firm pressure with a stiff probe or with a red hot platinum point or with the end of the finger perforations can be made in it. Many of the post nasal cysts are doubtless of this character, the cicatricial tissue shutting off spaces which including a few mucous glands become filled with a glairy viscid, or a serous fluid. Bands and knots of cicatricial tissue analogous to that in burns of the neck, though of course on a much smaller scale, can occasionally be seen stretching across, and dotted about on various places of the pharyngeal vault. This I believe to be the history and course of these hypertrophies if left to themselves. While in by far the larger number of cases these growths undergo the absorptive changes mentioned between the ages of fifteen and twenty-five, they are occasionally met with after that age.

Chatellier³ refers to a case in which he operated at forty-nine years of age. Delavan⁴ asserts that lymphoid hypertrophy may begin in adult life. This I doubt very much indeed. It is probable that these are cases in which the tissue has previously existed without noticeable discomfort until some coryza or acute infectious disorder has set up the train of well known symptoms. Dr. J. Solis-Cohen⁵ reports having seen an enlarged pharyngeal tonsil in a woman of seventy, which had never given rise to any symptoms. While I have frequently operated on pharyngeal "adenoids," between the ages of twenty and thirty, I have no recollection of ever having seen a case in which there was much lymphoid hypertrophy in the vault after this age.

³ *Maladies du pharynx nasal, des tumeurs adénoïdes*, 1890

⁴ *N. Y. Medical Journal*, Oct. 12, 1887, p. 393

⁵ *Journal of Laryngology and Rhinology*, Feb. 1889, p. 3

It has been stated that these cases are occasionally congenital, and I have observed the growths in an infant a few months old.

They most frequently give rise to symptoms, between the ages of five and ten years. After that age the naso-pharynx begins to enlarge and grow away from the obstructing mass, on all sides, which of itself grows smaller.

As for the frequency of their occurrence, Meyer, out of 2,000 children, found them about one per cent. in Copenhagen. Here in New York, out of 2,000 children, Chappel⁶ found sixty who suffered from adenoid growths, or 3 per cent. These figures were taken from various public institutions, and doubtless the proportion is not so great when we include the better classes.

It has been stated and many times repeated by the best observers, that these growths are the frequent cause of high arched palates, narrow jaws and crooked nasal septa. While they may have some slight influence in modifying the growth and development of the maxillary bones, I believe that in this respect they have mistaken the cause for the effect. Heredity is claimed by many as a predisposing cause. If we inherit naso-pharyngeal tumors, or hypertrophies from our progenitors, it is an anomaly and contrary to all conceptions of modern biological laws. We may inherit cells which are predisposed to proliferate, or cells which are of low degree of vitality, but we do not inherit tumors.

We know that there is an inherited tendency for the physiognomy of the child to resemble that of the parent in a general way. This means that the dimensions and shape of the bones of the skull tend to assume the ancestral type. We often see a peculiarly bent little finger running through several members of the family. We know that the negro race has broad cheek bones and low palates, and usually straight nasal septa, in contra-distinction to the prognathous type so frequent in the descendants of the old Iberians.

It is however, an undeniable fact, that lymphoid hypertrophy of the pharyngeal vault, is very much more common in the latter class. To my mind the explanation is tolerably clear. It is easier to get dust out of an obtuse angled corner, than out of an acute angled one, and applied to the pharyngeal vault (which is of course always narrow where the palate arch is) secretions are more apt to lodge in the narrow, high arches, than in the wide, low ones—and adherent secretions set up irritation. To still further prevent the flow of secretions, we have in these cases the narrow anterior nasal passages which do not permit as good a current of air to reach the post nasal space. The vibrating ciliated epithelium thus has greater obstacles to overcome constantly; and in coryzas, with the narrowing of the angle from

congestion and swelling of the mucous membrane, and with the stoppage of the air current, sometimes complete, through the anterior passages, the disadvantages of the narrow angles are at once apparent. This should give us a practical hint for treatment of the third stage of a coryza.

Irritation of the pharyngeal mucous membrane is, I believe, the immediate cause of this lymphoid hypertrophy. If we add to a high, narrow vault, as a local predisposing cause a constitution of low cellular vitality—the scrofulous diathesis of a former decade, with a tendency to enlargement of the lymphatic glandular structures everywhere, we have an ample explanation why these cases are more prone to so called adenoid vegetations.

On the other hand these phenomena, narrow vaults, poor constitutions and pharyngeal lymphoid hypertrophy do not always go hand in hand. In blooming, healthy, robust children, narrow pharyngeal vaults may give rise to vegetations, while even with wide vaults, scrofulous children frequently have them. They are rarely seen in robust children with low vaults.

The etiology of every disease is always more or less complex and post nasal hypertrophy is no exception.

The conditions of life under which we live, especially in cities, are very favorable to the frequent occurrence of coryzas and general inflammations of the upper air tract. Our absurdly heated houses put our constitutions to the severest tests. The halls as well as the living rooms are seldom below 75° F. In winter we step outside the door and the inspired air undergoes a change of 40° in temperature. It strikes a mucous membrane enervated by 12 hours of equable high temperature. The muscular coats of the arterioles, the fibrils of the sensitive and sympathetic nerves are placed in the same predicament as the heart, lung, leg and arm muscles of the sedentary student who is suddenly called upon to run a race or engage in a wrestling match with an athlete. We know the results in both cases.

Ethnographical research, always interesting, would be especially so to us if investigations could be made as to the condition of the naso-pharynx in the American Indian, and the Central African negro. They have no hot air or steam heating furnaces in their huts, and they do not live in the dust of an American city. The difference in temperature between the warm sun and the cool shade is enough to accustom their vaso-motor nervous systems to more decided changes of temperature.

It is probable that when primeval man tore the flesh from the bones of his prey with his teeth, and the individuals of weak constitution perished in early youth, or early manhood, a properly developed superior maxilla was as necessary for existence as were other physical perfections. Un-

⁶ Am. Journal Med. Sciences, Feb. 1889, p. 148.

der these conditions we should expect to find a normal naso-pharynx.

It was once asserted that cases of adenoids were confined to the damp, cold localities of the northern seaboard. They are probably much more common in this locality than far inland. They are more common in cities than in the country, one reason being perhaps that the throat specialist flourishes, *par excellence*, in cities. They follow the irritations set up by scarlet fever, diphtheria and measles. In fact anything which will set up persistent or often repeated irritation with the predisposing factors mentioned may be a direct cause.

It must be remembered that these tumors are of slow growth. They have usually existed a long time before the symptoms they cause become sufficiently marked to attract the attention of the child's guardian or of his medical attendant. The increase in size, which they attain from some acute and severe attack of coryza, from the pharyngeal inflammation of scarlet fever, or of measles, or of diphtheria, may cause it to appear that the condition has not previously existed. It must be a fact that they may exist even in considerable volume without ever giving rise to appreciable symptoms, as Dr. Cohen's case illustrates.

In the various papers on the subject so much has been said of the symptoms and sequelæ that further repetition would be tiresome and superfluous.

If you will observe the small cavity which makes up the naso-pharynx and posterior openings of the nostrils in the specimens from the still-born infants I have shown you, you can appreciate that a small mass of tissue would be capable of causing a good deal of obstruction.

Where the condition is suspected examination should at once be made, but this should only be undertaken in the absence of any unusual pharyngeal or nasal inflammation.

Dr. Delavan (*loc. cit.*) has reported a case in which hypertrophy of the pharyngeal tonsil was very apparent during attacks of coryza and pharyngeal inflammation, while in a state of quiescence the mass sank into comparative insignificance.

I have very frequently observed the same thing with these lymphoid growths. In one case which I had examined by digital exploration and had detected their undoubted presence, I made an appointment for an operation when the child should have recovered from a slight coryza she had at the time of examination. At the time appointed the child was etherized, and on introducing the finger into the naso-pharynx to hook forward the palate and locate the growths, I was astounded to find no trace of them beyond a little roughened feeling to the pharyngeal vault. The operation was postponed and a lesson learned.

In making an examination, if the examiner is accustomed to the use of the rhinoscopic mirror an attempt should always be made, whatever the age of the child, to use it. In a certain proportion of cases it is absolutely impossible for the most patient and experienced of examiners to succeed with the mirror.

Chatellier, in fifty patients, was able to make a diagnosis in forty-one, the youngest of whom was five and one-half, while in nine, the oldest of whom was 12½ years, digital examination was necessary. As far as my own experience goes, I should think the proportion was about the same, though I am sure, without having any distinct recollection of the fact, that I have succeeded at an earlier age than 5½.

Nevertheless in the child little more than their mere presence can be made out with the mirror. A mass of grayish-red tissue apparently springing from the posterior or lateral walls obstructs further view. When the child is anæsthetized for the operation is time enough to make out the extent and the situation of the growths. Digital examination is extremely uncomfortable for the little patients, and simply because they cannot express their feelings in the flowing and forcible language of the adult American, is no reason for sticking the index finger into the naso-pharynx. I know I am preaching what many of us, myself among the number, do not strictly practice, but in the hurry of a large dispensary clinic the requisite time and care cannot always be taken. The use of cocaine in the examination by mirror of the post-nasal space is of very uncertain effect. Occasionally it works like a charm, but more frequently it either has no effect at all in overcoming the reflex spasm, or, as often happens, it aggravates the irritable condition very much, sometimes producing intense retching and gagging, and renders the patients half frantic in their effort to get rid of the feeling of a foreign body in the throat which it produces. In the adult, posterior rhinoscopy, I believe, is nearly always possible to those accustomed to the use of the mirror.

Various forms of palate hooks have been invented. While some claim to be able to derive advantage from their use in examination, there are many who think them useless. In very tolerant patients who bear cocaine in their throats well, I have found the self-retaining one invented by White, of Richmond, of advantage in operating in the post-nasal space with the galvanocautery. For simple examinations they are superfluous, and it has been my experience that they are worse than useless in irritable throats, often causing uncontrollable gagging and vomiting.

In dealing with the question of operation it is necessary to divide the cases into two classes: those in whom general anæsthesia is neces-

sary, and those in whom simple cocainization is sufficient.

Practically, nearly all those of 12 years of age or under fall in the first class, while etherization is rarely if ever necessary after 15. Between these limits it depends on the patient's individual characteristics. A child will often allow easily enough the first introduction of the forceps, but rebels at all subsequent attempts, and unless one is sure of success it is best to use general anæsthesia at once—as without it many sittings are often necessary and children do not bear these well.

Moreover, in children the naso-pharynx is so small, that little is usually to be gained by the intermittent use of the mirror, while in the adult pharynx the view obtained is of the greatest importance.

If adenoid growths are accidentally discovered in a child's naso-pharynx, which give rise to no symptoms, it is best not to disturb them. They will nearly always be small in amount, and after atrophy in adolescence will probably leave behind no more cicatricial tissue than the operation itself would occasion. The child's guardian should be warned of their presence, and should any of the well-known symptoms of mouth-breathing, snoring at night, earache or deafness begin to appear surgical interference should at once be undertaken. The operation is a trifling one, the relief is nearly absolutely certain, and if left to themselves the sequelæ may be serious if not disastrous.

Nearly every operator has a method of his own when it is necessary to use an anæsthetic. Many use chloroform which is said to be less dangerous in children than in adults. Most operators produce complete anæsthesia. I believe this to be a mistake. There is always an early stage, that of primary anæsthesia, when pain and the reflexes are abolished for a few minutes, which is long enough to hook forward the soft palate with the finger, and with the post-nasal forceps thoroughly clear the post-nasal space. There is not then danger of blood and tissue getting into the larynx, the patient recovers more promptly, the bleeding is less, and the reaction slight. Immediately after the first growths have been severed, allowing the head of the patient to fall over the edge of the table will put it in the position of Howard, and allow the blood to pour out of the nostrils. This should only be resorted to for a few moments as the position causes pressure to be exerted on the anterior cervical veins which increases the amount of hæmorrhage. This is nearly always very trifling in itself, but when the patient is deeply anæsthetized blood flowing into the trachea has occasionally produced very alarming and frequently very annoying results.

Notwithstanding the usually prompt cessation of hæmorrhage, there are several cases on record

where the bleeding was excessive. Delavan⁷ (*loc. cit.*) has reported a few cases, and Woakes one or two. After cocaine anæsthesia in which three or four comparatively small pieces were removed from the naso-pharynx of a young lady, I have had very prolonged and profuse hæmorrhage. The patient lost considerably over a quart of blood, and it was finally necessary to introduce an absorbent cotton plug soaked in a solution of the nitrate of iron into the post-nasal space, which was effectual in checking the bleeding. In this case I had at a previous sitting removed a much larger piece without more than the usual amount of hæmorrhage.

Voltoini reported a death from a mass of the growths falling into the glottis, but such an accident with the cutting forceps and with the precautions I have mentioned, can be almost ruled out of the list of possibilities with partial anæsthesia.

I believe that the great majority of operators prefer some form of the post-nasal forceps, first used by Loewenberg and modified into different special patterns by nearly every laryngologist of note. The one devised by Gradle, of Chicago, has the advantage of a larger cutting surface, and thus more of the mass can be removed at the first grasp, which is a great advantage since the field of operation is afterward filled with blood and mucus, the detection and seizure of the remaining fragments much more difficult, even when the instrument is guided by the index finger.

The use of the finger-nail alone, or armed with a steel scraper, is only effective for small sessile growths, especially on the sides and posterior wall of the pharynx. I have found some of the various forms of curettes useful for this purpose.

It is probable that no operation is so thorough that all vestiges of the growths are removed at any one time. While desirable, this is not imperative, as when the blood supply is once broken up, small remaining fragments atrophy and become insignificant.

In older patients, who readily learn to control their faucial muscles, and their apprehensions, it is preferable, I believe, always to use a 10 per cent. solution of cocaine, which makes the parts insensible and allows the use of the mirror.

As before said, there is the greatest difference in the way patients bear cocaine in their throats. This is true not only in regard to reflex phenomena, but also as to the abolition of pain. Without cocaine, the pain is usually not so severe as to be unbearable; but with such a powerful agent in abolishing it altogether, there is no excuse but the idiosyncrasy of the patient for not using it. Two or three grasps of the forceps is usually all that can be made at one sitting, as the field of view becomes obscured in the post-nasal mirror,

⁷ Cartaz (*Arch. de Laryngol.*, etc., June, 1890) reports several others.

by blood. Small shreds and protuberances of tissue may be burned down with the cautery—and here, in tolerant patients, the palate retractor may be of service. A number of sittings, with a week or ten days between them, is frequently necessary before the post-nasal space is freed from the obstruction. A weak, warm carbolized douche may be gently used two or three times a day. For a day or two after an ether operation, the child should be confined to the house, and for several days longer some care should be exercised in preventing him catching cold. There is very little reaction after the operation. Older patients need rarely be confined to the house in good weather.

Occasionally, though very rarely, I have seen a previously quiescent otitis media light up after a post-nasal operation and give some trouble, but this always subsides under proper treatment.

In adult patients, it is a matter of fact which experience, some of it quite chagrining, has impressed upon me, that deafness having its origin in post-nasal trouble and its accompanying Eustachian catarrh, is usually susceptible of only a very moderate degree of improvement, if it has existed any great length of time. The improvement in the local condition of the naso-pharynx nearly always ameliorates the aural trouble. Eustachian catarrh is, however, met with, and not infrequently where the naso-pharynx is comparatively healthy. Sunken drum membranes and ankylosis of the chain of bones are met with, in which there is neither naso-pharyngeal nor Eustachian trouble in activity. These have doubtless existed, and are the cause of the condition, but the subacute inflammation has subsided, leaving behind it more or less cicatricial change in the mucous membranes, which is of little moment. But the mechanical apparatus of the middle ear, more delicate in its structure and more highly specialized in function, has suffered irreparable damage.

Therefore, in adults with post-nasal obstruction and aural symptoms, we must give a guarded prognosis. We must have in mind the possible extent of pathological changes, and that depends, in a large degree, on the time the symptoms of Eustachian deafness have lasted. The results of post-nasal treatment in middle ear troubles are brilliant—so brilliant, in fact, that they have inflamed the imaginations and blinded the eyes of many otologists and rhinologists; but the stubborn facts remain, that a large proportion of these cases are incurable, and many of them susceptible of only a very moderate degree of improvement.

THE Honorary Degree of LL.D. has been conferred by Dartmouth College on Dr. Edward Cowles, the Superintendent of the McLean Asylum in Massachusetts.

REPORT OF FIFTEEN CASES OF PUERPERAL ECLAMPSIA.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-first Annual Meeting of the American Medical Association, Nashville, Tenn., May, 1890.

BY JOHN G. MEACHEM, M.D.,
OF RACINE, WIS.

There is hardly a subject connected with obstetrics, or medical practice, that has been spoken and written upon so much as puerperal eclampsia, and yet the profession seems to be as unsettled in regard to its treatment, as it was forty years ago. One practitioner adheres to the long taught plan of bleeding by venesection, another pins his faith upon opium, chloral, chloroform, veratrum, etc. The first discards opiates and narcotics, as a rule, while the other would think it almost criminal to open a vein. Success has without doubt attended both modes of practice, but there are cases where the exclusive adoption of either, would prove disastrous. I propose to give to this Section the history of a number of cases, fifteen in all, that have come under my own observation and management, where venesection has been resorted to in all of them but one, and the favorable results will, I think, prove the great value that the remedy exercised in them.

Case 1.—Mrs. B., æt. 25 years, had not been in her usual health for several days. She was in her seventh month of pregnancy, but had passed over all the early symptoms of her condition, and for two or three months had been unusually well. She lived alone with her husband, who was a farmer on rather a small scale, and she had been in the habit of doing all the necessary work connected with her housekeeping, for her small family. She was sitting at table with her husband, when all at once, without any premonition or warning, she was seized with a terrible convulsion. I was immediately sent for, but as I resided about two miles from the patient, an hour must have elapsed before my arrival. I found her unconscious, but not in a convulsion, although she had had three before I saw her. Upon inquiring into her condition, I found it as just stated. A vaginal examination disclosed the fact that she was in labor, and advancing with considerable rapidity, and while I was making it, she went off into another convulsion, which continued until she was bled to the extent of 15 ozs. All turgescence of the head and neck, which was considerable, was at once relieved, and she was easy and quiet for an hour, when her labor was terminated naturally and without more convulsions. Her recovery was quite rapid.

Case 2.—Mrs. C., the wife of a prominent lawyer and Judge of Western New York, during her third confinement, at full term, was attacked with eclampsia. The family physician was a homœopath, and he had in consultation another of his school. She had had ten convulsions when I was

sent for. I found her totally unconscious, and far advanced in her labor, so that I was enabled to deliver with the forceps in a few minutes. She had some slight convulsions after, and died comatose in about two hours. She was not bled, as she was too far gone to expect any benefit from it, when I was first summoned to the case. Had I seen her early, I should certainly have taken 15 or 20 ozs. of blood, and would have expected recovery.

Case 3.—Mrs. A., a Norwegian by birth, a strong, powerful woman of 25 years of age. She had been in labor several hours, when she was seized with a very severe convulsion, which lasted until I took 20 ozs. of blood from her arm, which I found great difficulty in doing, on account of her unusual strength, used in an ungovernable manner. After the bleeding she quieted down, and I was enabled to deliver her with the forceps very soon, of an unusually large, vigorous child. She had no more convulsions, and exhibited no ill effects from the loss of the 20 ozs. of blood.

Case 4.—Mrs. B., æt. 30, a stout, fleshy woman, two days after her fourth confinement, was suddenly attacked with severe pain in the head, and a terrible convulsion soon followed, which was repeated again and again until six had occurred before I could get to the patient. Her face was purple and her breathing stertorous. A vein was opened as soon as possible, and a liberal quantity of blood abstracted, which had the effect of lessening the force and frequency of the paroxysms, but not of arresting them, nor did chloral and chloroform, which was afterwards used, for she died in a few hours in profound coma, the result of an extravasation of blood within the cranium, which doubtless occurred early in the case. I attended this patient in all her confinements, and they were easy and natural, and the last was the most rapid of them all.

Case 5.—Miss B., a large woman every way, about 20 years of age. She passed through the whole period of her gestation, without any member of her family suspecting her pregnancy. She suffered severely from "colic," as she said, during the whole of a night, and early in the morning was attacked with a convulsion. A physician of our city of considerable experience was called, but did not for a moment suspect that the spasms were connected with a puerperal state. After witnessing a few of them, he desired consultation, which was called, nor did the consultant have an idea of the nature of the case. The convulsions continued to recur in spite of all their treatment, until 12 o'clock M., when I was added to the consultation board. She was in a convulsion when I first entered the house—her face livid, almost black, and the blood-vessels of the head, face and neck turgid and distended to an extreme. She was totally unconscious, and the breathing was heavy and labored. Up to this time, not a suspi-

cion of the true nature of the case had dawned upon the minds of her medical attendants, although both were experienced practitioners, and considered themselves well up in their profession; but the patient was unmarried, very large, always having a very full, prominent abdomen, and above suspicion of being capable of anything wrong. These were the misleading points, and most effectually did they work. When I asked if a vaginal examination had been made to ascertain if the uterus had anything to do in connection with the convulsions, I was promptly answered in the negative. I immediately instituted such an examination and, not to my astonishment, for I took in the situation at first sight, I found the effect of a child low down in the pelvis, with the uterine os thoroughly dilated. A vein in the arm was opened and 20 ozs. of blood taken, and almost immediately after, the forceps were applied, and she was delivered of a fine large, but dead baby. She had no more convulsions and in a few hours recovered her consciousness, and at the end of two weeks, was as well as most women at that period after confinement. She had more than twenty convulsions.

Case 6.—Mrs. S., æt. 20 years, after having been in labor a few hours, with her first child, was seized with a severe convulsion. She was in the care of another physician, but as soon as the spasms came on, he made himself scarce, on pretense of going after medicines, instruments, etc. It was at 10 o'clock P.M., after waiting more than an hour for his return, during which time she had four convulsions, that my son and partner was sent for, and I soon joined him in attendance. At the time of our arrival she had had six spasms. A vaginal examination revealed a fair progress in her labor, but not sufficient advance to be able to apply the forceps. She was bled freely, and for an hour escaped further convulsions, when another came on. A few ozs. more blood was taken, when a second examination was made, and sufficient relaxation found to admit of the easy and safe application of the forceps, and she was delivered of a large, healthy boy. She had no more convulsions, and made an ordinarily rapid recovery.

Case 7.—Mrs. C., in confinement with her first child, although she had miscarried at three months more than a year and a half before. She had been in quite hard labor four or five hours, but on my arrival I found her making good progress. About an hour after, while sitting by her bed, I noticed a squinting of the eyes, and very soon she screamed out, "I cannot see. I am blind," and a most terrific convulsion immediately followed. As soon as I possibly could, I opened a vein, and took away 16 ozs. of blood. She came to herself, but complained of intense headache. Her labor pains continued irregularly for an hour, when her face became flushed, and a slight spasm recurred. A

few ounces more blood was taken, the forceps applied, and her labor ended. She had no more convulsions, and made the usual recovery.

Case 8.—Mrs. M., æt. 19 years, in labor with her first child. Was in the care of Dr. Meachem, Jr. (with myself in consultation), who had been with her some hours. There was nothing unusual about the case until eclampsia supervened, except, perhaps, a somewhat rigid os. She had been bled freely after the first convulsion, which greatly reduced the force of those that followed, and relaxed the uterus, so as to allow it to be emptied of its contents by the forceps without difficulty. She had three very light spasms after the birth of the child, but they were of no account and, although a somewhat delicate woman, she made as good and rapid recovery as the majority of parturients.

Case 9.—Mrs. M., æt. 26, sister of Case 6. She had a convulsion a few hours after the beginning of her labor, and a second came on while I was getting ready to bleed her. After copious depletion, she was delivered, with the aid of forceps, of a large, vigorous child. She had no more spasms. It was her first labor.

Case 10.—Mrs. L. was a short, stout-built woman, of 21 years of age. She was taken in labor at seven months' term. It was early in the evening, and at midnight I was sent for. She had had already five convulsions, as some little interval had elapsed from the time of their sending for me until I arrived, as I was elsewhere engaged at the time. I bled her freely, and terminated her labor with the forceps within half an hour. She had two slight convulsions subsequently, but that was all, and she recovered as soon as others and as well, not noticing the loss of blood in the least. One year after, I attended her again, when her labor was every way natural and rapid.

Case 11.—Mrs. S., æt. 30, had been in very hard labor twelve hours, and when the head was pressing hard upon the perineum, with every prospect that another hour would terminate it, she was seized with an unusually severe convulsion. I bled her as soon as I could, without regard to quantity, which relaxed her all that could be desired, so that without the least difficulty I applied the forceps and delivered. She had but one slight spasm following. This was her first and, so far, last labor.

Case 12.—Mrs. W., æt. 24, who had been in moderately hard labor a few hours. Her pains were not pressing, nor had she made much progress, when she was attacked with convulsions. The first was not severe, but while preparations were being made for bleeding, she passed into a second, which was violent and protracted. As soon as possible, a vein was opened, and a pint of blood taken. The child was born naturally after four hours. The arm was re-corded, and a few ounces of blood taken twice, after the large bleeding,

when symptoms of spasms seemed to be returning. None, however, came, as they were averted by this means.

Case 13.—Mrs. B., 20 years of age, was attacked with eclampsia just as the head emerged through the externals, after a labor of several hours. She had a succession of five convulsions, but after a liberal bleeding, no more occurred. It was her first confinement. She recovered quickly and well.

Case 14.—Mrs. M., æt. 23. Her first child. Her labor was natural, but protracted, on account of the child being out of proportion to the size of the mother. A few moments after delivery, she was seized with a convulsion of unusual severity. She was short, thick-set, and very plethoric. She was at once copiously bled, which prevented a recurrence of the spasms.

Case 15.—Mrs. S., æt. 25 years. Had been a teacher in our public schools for some years, was a second wife, and had been married not quite a year. She was short in stature, thick-set, and very strong. She had been in labor twelve hours, being attended by a very intelligent midwife, and everything seemed to be progressing favorably, and naturally, and hope was extended to her that she would soon be relieved, and be a mother; but without warning, she was seized with eclampsia. I was in attendance in half an hour, and she was then in her third fit. As soon as I possibly could, I bled her 15 to 20 ozs., and then found that I could apply my forceps, which I did, and delivered her of a 9-lb. child. She was unconscious after, for two hours, and not for many hours could she realize that she had been confined. She recovered as rapidly as though her labor had been unattended with the convulsions.

Out of these fifteen cases, but two deaths occurred, and they were from apoplexy, the mischief in Case 4, being accomplished with the first convulsion. There was more or less bloating in every case, but not one furnished the opportunity for an examination of the urine before labor. In both fatal cases the bloating was very marked. Fourteen out of the fifteen patients were bled, and all but one recovered. Most of them had no convulsions after the first bleeding, and in those where they did recur, were greatly moderated in force and frequency. That the bleedings aided greatly in permitting an earlier application of the forceps, thus enabling us to sooner deliver, I am confident; and the great importance of this procedure I think few obstetricians question at the present time.

Dr. Meigs says, that the first thing to be done in these cases (referring to eclampsia), is to remove the cause by delivery, and the second to moderate the effect by venesection and evacuants; but my own experience is just the reverse. Bleed first, and deliver afterwards, as few cases will al-

low the application of the forceps until some relaxing means has been first resorted to.

Leishman says, that uterine action is much more likely to be the effect, than the cause of eclampsia, to which sentiment I cannot subscribe, for all of my cases, with one exception, were preceded by labor pains, and labor was not the result of convulsions. Many cases of eclampsia could be prevented, if the opportunity for treatment was afforded a few weeks before labor; but the majority of cases are not seen by the physician until he is called to attend them at parturition.

Timely and appropriate treatment, could it have been had, would doubtless have saved some of my patients much suffering and great danger. The lesson to be drawn from the history of these cases is, to bleed liberally and deliver early; that is, as soon as sufficient relaxation will safely allow the application of the forceps. If urea be the cause in a majority of the cases of puerperal convulsions, certainly a sudden abstraction of a quantity of blood is the quickest way to relieve the system of it, and observation has convinced me that delicate patients endure the loss of considerable blood without weakening very much under it—from the fact, probably, that a large quantity of poison has departed with the blood, which before had been a source of depression and mischief, and if congestion of any part, has anything to do in causing eclampsia, certainly nothing would act so promptly and so surely as venesection in relieving it.

DISEASES OF FEMALE PELVIC ORGANS.

WHEN TO OPERATE BY ABDOMINAL SECTION.

Read in the Section of Obstetrics and Diseases of Women at the Forty-first Annual Meeting of the American Medical Association, held in Nashville, Tenn., May, 1890.

BY M. B. WARD, M.D.,

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In accepting the kindly request sent me by the President of this Section of the American Medical Association, to read a paper on "some subject connected with Abdominal Surgery" on this occasion, I was not in the least unmindful of my unfitness for such a task.

I have but one special reason for attempting to appear before you with a few remarks based upon the above title. I thought a paper on this subject from a *Kansan* might be a "novelty," in view of the fact that most of the papers which will be presented for your consideration, will come, (and justly), from eminent men residing in the great medical centres.

The mass of physicians seem to have a very imperfect understanding of pelvic diseases. "Pelvic cellulitis" as taught in the past, and understood by many at the present time, has had to bear the opprobrium of every abnormal condition of the female pelvic organs. It is the natural

result of the teachings of most of the authors on pelvic affections.

It would not require a very elastic imagination to conclude that some of the authors on diseases of women have never seen the inside of a diseased pelvis, judging them by their descriptions of the pathology of pelvic cellulitis, peri-uterine cellulitis, pelvic abscesses, etc. I cannot say that there is no such a condition known, as general pelvic inflammation, but I do not believe such conditions are found present in any case, as a *primary affection*. In other words, the intermediate or cellular tissues, are not primarily ever the seat of disease, of sufficient gravity to cause abscess.

There is no possible way for the pelvic organs to become diseased, except it be by transmission from without in, and that through the only channel known to anatomists, via vagina, uterus and Fallopian tubes. If this is a true statement, what can cause an inflammation of the pelvic organs, (barring violent traumatism), except it be by transmission of the germs by the route just mentioned?

To those who are familiar with the minute anatomy of the tubes, it is but natural to expect that the tubes would imbibe the greatest virulence of the poison in its passage through the narrow lumen of these organs, and thus become first diseased.

It seems to me, therefore, entirely within the bounds of propriety, to say in this connection that the pathology of pelvic diseases has not been understood by the writers of our books on diseases of women. The question then is, what are the morbid conditions in cases of pelvic diseases? Numerous, indeed, may be the complications. There may be ovarian cysts, parovarian cysts, abscess of ovary, abscess of the broad ligaments, hæmatocele of the broad ligaments, hydrosalpinx, ectopic pregnancy, etc.

All of these pathological conditions have been the rounds of the whole world under the title of pelvic cellulitis, and these are the abnormalities, one or more of which will be found in every case of so-called pelvic inflammation.

It is not my purpose to dwell upon the diagnostic symptoms of pelvic diseases. To attempt to do so would prolong this paper beyond the limits of propriety. It will be subsequently necessary, however, to make mention of some of the symptoms, in order to draw the line between operative and non-operative cases. This brings me to consider briefly the second section of my title: namely, when to operate by abdominal section.

This is the most important question now before the surgical profession. It is a question which must be answered (except in a general way), by each operator for himself, when brought face to face with his patient. A thorough discussion of

this great question will be invaluable to all interested. There are so many different elements to be considered in each individual case, that it is painfully difficult to always know how to decide. The personal application of the *golden rule* will materially assist the surgeon in his conclusions.

In deciding upon any grave operation, the surgeon ought always to exchange places, as it were, with his patient, especially when the operation is to be done to relieve pain, rather than to save life. Is it not more natural for the surgeon to reason thus: "Well she might as well be dead as alive, for life is a burden to herself, and she a great care on her friends." To the patient, the surgeon says, "your health, as you well know, has been and is now most miserable; you cannot ever enjoy life in your present condition, and an operation will, if successful, make you perfectly well; you have a good chance for health, although you might die."

Should she not embrace this only chance of health, with the reasonable certainty that she will survive the ordeal, when in the hands of trained abdominal surgeons?

I answer, yes. In my judgment, she ought, but she must be allowed her own choice. Suppose she says: "No, doctor, I cannot quite make up my mind to risk my life on the altar of an uncertain promise of surviving the operation, and still more, the possibility that something now unseen, may occur to prevent my permanent recovery, when I already have a reasonable certainty that I will live for years—of course, not in health—but at least exist without an operation. However, doctor, if after a careful analysis of my case, you, my friend and physician, ay, more than that, an expert in cases like mine, unhesitatingly advise me to have the operation performed, I will abide by your judgment and submit willingly." The foregoing is a homely, but *true* picture of many cases in the experience of every physician practicing gynecology. What shall our decision be? Is this not a trying position to be placed in? It seems to me that no honest, conscientious surgeon, could treat lightly such a responsibility. Of one thing I am seriously impressed: namely, no *monied* consideration should be allowed to enter into the reckoning, when human life is in the balance. I cannot better express my thought in this connection than to refer you to the words of a young English officer, by name DeLisle.

When he was a midshipman of 16, a storm occurred during his watch, in which a mast was swept away. The captain came on deck in a fury. "Why did you not send up a man to reef the sail?" he demanded of the boy. "I should have lost my own life if I had gone to reef it," was the reply, "and I will not send one of the crew where I dared not go myself. A mast is

not worth as much as a man's life." We must not be influenced in our decision by any consideration of personal gain, either directly or indirectly. It is our bounden duty to place ourselves in the position of the patient, and then, with our knowledge of the benefits to be obtained, the risks to be taken, the value of life to us, even though we are not well; if, in view of all the facts, we can say to the patient, yes, if I were you, I would have the operation performed, we can then be certain of a clear conscience, and this will give us that true, genuine courage, which every physician should possess.

It is not always necessary to make the decision for the patient. Often, indeed, do we find women who have suffered so much and so long, from many physicians of every creed, women who have been subjected to every known method of treatment, cervical dilatation, cervical applications, vaginal paintings, vaginal douches of hot water, curetting of the endometrium, applications introduced into the cavity of the uterus by means of spray syringes and uterine applicators, the use of galvanism and faradism, in every known manner yet discovered by an ever busy army of experimenters in this wileful art, and still she is a great sufferer, always in pain, too weak to be of any service to herself, and no aid to her family; cannot enjoy society at home or abroad, for she is suffering from constant fear of recurring spells; really attacks of local peritonitis, and perhaps not unfrequently of general peritonitis, which forces her to take her bed, and there remain for days and weeks, only to suffer the same experience before she has nearly recovered from the former attack. If she has not been so unfortunate as just pictured, perhaps she has suffered from one or more miscarriages, from which she had not fully recovered before she was exposed, either to the influence of germs, which invaded the uterine cavity and then the tubes, causing tubal infection, into that abiding place, "from whose bourne" no microbe ever returns, thus causing the symptoms and conditions, which in the other cases were brought about by too much of unsurgical and unmedical interference. Or, it may be the unfortunate patient has been exposed to that most dreadful disease, the greatest curse to womenkind, gonorrhœa, and this specific poison has been transmitted to the tubes, which is almost certain to occur, setting up an inflammatory condition, more destructive than all others, and which cause untold suffering.

These are the classes of cases that will be always ready for anything which promises them a reasonable certainty of relief from their suffering, and they will assume all the risks.

All that they will require is that the surgeon be a skillful operator, and be able to give them the benefit of modern surgery. What course shall we pursue when this class of cases present

themselves for treatment? They should first be prepared for an examination. This is of greater importance than it may seem on first thought. I have yet to see one patient, who was complaining of pelvic trouble, but who needed a thorough evacuation of the contents of the bowels before an accurate diagnosis could be made.

First, then, administer a saline cathartic, and request the patient to report again in twenty-four or forty-eight hours. If upon examination you find the uterine appendages diseased, with a decided enlargement on one side, or both, and the uterus fixed and bound by bands of adhesions, much tenderness and pain, even when care is exercised in the bimanual manipulations, (and it is only by the light, gentle touch, that a correct diagnosis can be made), with a history of irregular and painful menstruation, especially when the pain comes on a day or two before the discharge; great prostration when obliged to stand erect or walk; frequent micturition, often amounting to a decided vesical irritation, and urethral tenesmus; we can be reasonably certain of tubal disease, but to differentiate the exact condition will not always be possible.

The fact being once established that there is chronic salpingitis, with distended tubes, filled with serum or pus, an abdominal section, and the removal of the uterine appendages is the only means by which a cure can be promised.

At this point it was my intention to say something regarding the use of electricity in the treatment of these affections, but I will not impose on your indulgence to say more than this: I do not believe any case of tubal disease, where there are pus pockets and occlusion of the lumen, was ever cured or ever benefitted by the use of electricity. It is quite unreasonable to expect such remedies to do within the body, that which they cannot do on the outside.

In regard to the necessity for abdominal section, in any given case, as above described, it is always best, when possible, to place the patient on saline medication, used daily, with bitter tonics, and recommend good nutritious food, great care from exposure to inclement weather, rest in bed during menstruation, and carefully watch the case noting the improvement, if any, thus giving your patient all the opportunity possible to get along without surgical interference. The daily administration of small doses of sulphate of magnesia, will keep women quite comfortable even though they have been suffering for months from engorgement of the pelvic organs. If the patient does not make permanent improvement under this treatment, nothing will be gained by postponing the operation. Two important features are connected with this plan of procedure. The first is, you prepare the patient for the operation, if it is found necessary; and second, when there is some doubt as to the propriety of an op-

eration, it keeps the patient under your observation until you have time for reflection, and to watch the symptoms. In some cases an operation may be thus postponed for an indefinite time, and in others, the necessity for immediate interference will be emphasized.

My friend, Dr. Joseph Price, of Philadelphia, has reduced this question to a science. His method is, "never to operate for pain alone, but only to save life."

When patients come to the surgeon from some distant place, much more difficult will it be to decide as to the proper course. Even with these cases, a few days of preliminary treatment as before described, under the immediate charge of the surgeon, will help to clear away any doubt, and give the patient the benefit she is entitled to.

There are, of course, many cases whose symptoms point so positively to serious trouble, that there remains but one course to pursue; namely, operate as soon as possible. There is a *moral* question which must not be lost sight of in the discussion of this subject. It seems to me, all other conditions being equal, we are bound to postpone surgical interference on unmarried girls, who are likely to marry and bear children, and also when the patient is a young married woman, who ought to bear children, if possible. I am of the opinion that it is rare, indeed, for this class of cases to become pregnant, but inasmuch as it is possible for them to conceive, if the ovaries and tubes are not entirely diseased, they should have the benefit of the one chance in many, if the chances of waiting are not too hazardous. How often, indeed, is it true that women lose their lives because of procrastination, in deciding on the course of treatment. It is the plain duty of the patient to share with the surgeon the responsibility of waiting, if she desires to do so, after she has been informed of the great risks which she has to take by postponing the operation, when the case is clear that she has no other chance of regaining her health, and that in place of improving, she is certain to get worse, and liable to a fatal peritonitis at any time.

Finally, the consummate skill of the surgeon must be exercised in any operation on diseased pelvic organs.

If we have had the training which the gravity of the operation demands, we will learn one thing better than all others, to-wit, that it is not *true bravery* which impels a surgeon, without having first been trained in the modern methods of successful abdominal surgery, to recklessly operate on these cases. It is on the contrary *foolhardy*, pluck, the result of a determination not to be outdone by others, and indicating a lack of appreciation regarding the difficulties and dangers of these operations. Success is obtained only by the most careful painstaking in every case. Every step of the operation must be perfect, if

we expect uniform results. The fact that the surgeon has had a large number of successful cases, is no reason why he should become careless, or neglect the little points in a single one of his operations.

The poet has expressed my views of surgical bravery in the following lines :

"Be bold, be bold, and everywhere, be bold !
Be not too bold ! Yet better the excess
Than the defect ; better the more than the less !
Better like Hector, in the field to die,
Than like a perfumed Paris, turn and fly."

GASTRO-HEPATIC FEVER.

Read in the Section of Practice of Medicine at the Forty first Annual Meeting of the American Medical Association, held in Nashville, Tenn., May, 1880.

BY THOS. LEGARÉ, M.D.,
OF CHARLESTON, S. C.

The subject of fever has engaged the attention of medical men for many centuries. Some of the most able minds of every age have employed their powers in the examination of this important matter, and have endeavored to hand down to posterity the result of their observations and reflections. But what was practical knowledge to them, has been too often anything but knowledge to those who have endeavored to study and understand their works. We may take two cases of fever, unlike in cause, in tendency to favorable or unfavorable termination, and widely differing as to medical appliances necessary to produce a favorable result, and yet there may be such sameness in their general and even particular characteristics, that he who can make Nature breathe in every line, may find it difficult to write a description such that one may readily be distinguished from the other, even by men highly skilled in book reading and book making. Hence, my few imperfect observations as made in Charleston, S. C.

Few months pass, in which I have not been called to attend this fever, to which I have given the name gastro-hepatic. This name I will beg leave to apply to my remarks upon this malady, promising that, worthless as they may be, they are entirely my own, and correct so far as I can transcribe the book of Nature from which they were drawn.

Gastro-hepatic fever may be divided into three varieties :

1. A regular remittent, rapidly running into, or assuming a continued form.
2. A continued fever from the commencement, in which all the prominent departures from health are discoverable in the stomach and liver.
3. All the manifestations of disease are made known, in a great measure, through the nervous system. Here let me observe, however clear in the beginning the propriety or practical utility of

dividing this fever into different varieties, it becomes less and less apparent as the disease advances, and at the end of the first week, or thereabouts, we often find it very difficult, even by most minute examination of the symptoms then present, to determine to what variety the case belonged in its commencement ; the varieties are disposed to run one into another, and become blended together, but this is less true with regard to the third, than the first two.

Gastro hepatic fever may also be divided into three stages :

The first is the premonitory or forming stage, and includes a period of time very difficult to fix, as it may vary from a few hours to as many weeks.

The second includes about the first seven days after the patient is fully under the influence of the disease ; it is the stage where high vascular excitement may be present, and in it active purgatives are not absolutely forbidden.

The third is marked by exhausting diarrhœa, and general prostration of the vital powers ; it runs from about the seventh to about the ninth day after the disease is fully developed, at which time we may expect the sudaminal eruption, discharge of blood from the bowels, and swelling of the parotid glands, all of which I have been led to consider as critical.

There is no constant mode in which gastro-hepatic fever assaults its victim. In one instance it advances almost imperceptibly, the patient being unable to fix the time when he grew unwell, or to trace his indisposition to any probable exciting cause. In another case the attack is sudden, or the patient can readily fix the day when he grew sick, and charges his illness to a fox hunt, to swimming a creek, being out in a heavy rain, or to some excess, severe fatigue, or exposure to great heat or cold.

The symptoms in the first or forming stage, in the first variety, when such attacks are preceded by any indisposition, are very similar to those which I will presently enumerate as occurring in the second, but commonly of shorter duration. More frequently, however, we have, in the very commencement, a full-formed chill, followed by a remittent fever of the tertian type. The characteristics of remittent fever begin to disappear about the third day, and (nine times out of ten) before the fifth or sixth they are no longer discoverable, and we have in our hands an unquestionable case of gastro-hepatic fever. The tip and edge of the tongue, in the commencement, usually present the appearance of a red, or, in cases of great prostration of the vital powers, a pale red hue, the centre being a dirty ashy or dish-clout color, without papillæ.

In the second variety the patient is sometimes seized when in good health, generally, if not always, in the evening, with a slight creeping

coldness extending up and down the back, not amounting to rigor. Headache, pain in the back and extremities, warmth of skin, disturbed pulse, and all the symptoms that usually accompany increased arterial tension, supervene, though most commonly these symptoms are preceded for some days, perhaps a week or even a longer time, by more or less indisposition, consisting in slight headache, some pain in the loins and lower extremities, a general feeling of lassitude or weakness, irregular appetite, and sleep often disturbed and never refreshing. The common, but by no means constant appearance of the tongue in the commencement of this variety, is a red tip and edge, fading into a rather dense white fur, from which shoot out large red papillæ not unlike those seen in scarlet fever.

In the first and second varieties, more than in the third, we should apprehend sudden and dangerous congestions of the internal organs in the earlier stages, to which under my observation the brain has been most liable.

It would be very difficult to give any description of the way in which the fever assaults its victim in the third or nervous variety, or to fix the day or even the week in which the system first began to be affected. For one, two, or three weeks, or perhaps a longer period, the patient will complain of slight but gradually increasing headache; pains in the loins, arms, legs, and almost every part of the body; lassitude and want of ability to pursue any physical or mental labor; disturbed and unrefreshing sleep; irregular appetite for food, and much impairment of the digestive function. To these may be added some pain in the bowels (I have seen a number of cases ushered in by violent attacks of colic), slight diarrhœa, and sometimes, though rarely, constipation.

On close examination, will often be found—what the patient is at first disposed to deny—that the urinary function is about as poorly performed as that of the digestive. Sometimes one or more, and again all, or nearly all, of these departures from health are present. In the white man, the skin is disposed to assume a dingy hue, and in the negro, a whitish ashy color.

From day to day the patient grows more and more emaciated, till at last, from general weakness, (if not from any local cause), he is forced to confine himself to bed. His inclination is to lie on his back from the first day. Up to this time, the pulse is but little disturbed, save a peculiar quickness which is never absent, and in most cases, some increase of frequency in the evening, accompanied by a skin (especially on the body and head), rather too warm for health. The tongue presents a variety of appearances; at one time it is large and relaxed, making a mouthful, its surface being covered with a white—or rather yellowish-white—fur, through which peep

forth many enlarged papillæ. At other times it is dense and thin, now and then cupped, tip and edge red, centre furred and studded with scarlet-fever-like papillæ; and again it is clean and very red, and occasionally almost smooth as glass—but this last is most likely to be the case where drastic purgatives or some improper medicine or diet have been indulged in; however, in the majority of cases the tongue presents no material departure from health. I have seen the pulse stand for days as low as 30, and for an equal period, in another case, its frequency would be 103; it is almost always more frequent in the evening. At one time it will be found full, bounding and incompressible, or jerking and vibratory; in the next case, perhaps, will be voluminous, gaseous, and very compressible; and, lastly, will be met a case where, from the commencement to the termination of the disease, the pulse will show but little disposition to vary from that of health.

Headache, buzzing in the ears, dangerous congestion of the brain, bleeding from the nose, stupor or watchfulness, low muttering delirium, and every degree of mental derangement, from slight errors of perception to varying madness, may be seen when this disease is prevailing.

The eye may be brilliant or dull. There is a peculiar appearance of the eye, perhaps best expressed by the phrase, "physical glare," that tells of neither thought nor feeling, always occurring after the eighth or tenth day, which is most unfavorable. The appearance that I would describe differs from that which is vulgarly called the "death stare," and may precede death by some eight or ten days. There is a peculiar expression of the face that says as plainly as countenance can speak: "I don't know where I am;" and yet the patient is nothing concerned because he cannot fix his whereabouts.

Hæmorrhage from the nose is not uncommon, and in the earlier stages is sometimes productive of good; in the latter stages it is always a cause for alarm. Hæmorrhage from the gums also is not infrequent; but has never given me much trouble.

Deglutition is sometimes very difficult, and when altogether suspended, as I have found in many cases, is a grave, but not always a fatal symptom.

This disease, under my observation, has sometimes been complicated with inflammation in the right lung, but I have never observed this condition to obtain in the left. And every case is more liable to the cough so common to the advanced stages of protracted fevers where there is great prostration of the vital powers.

Again, there is an eruption that I have found rarely absent, to which authors have given the name of sudamina. In the vast majority of cases, the skin is dry throughout the whole

course of the disease, and in some, and even fatal cases where the diarrhoea had not been considerable, the patient lost but little of the round and plump appearance of health, and this, even where the fatal termination had been delayed to the tenth day; and upon the other hand, the most emaciated beings that I have ever seen, either dead or alive, have been in protracted cases of this disease which terminated favorably; and what is worthy of remark, whilst this extreme emaciation obtained over the body and extremities, the face, and face alone, would be round and full, being somewhat dropsical.

Nausea, vomiting, pain, and occasionally great thirst, we always have; there is always a loathing to food. Grave hepatic symptoms are present in all cases; the function of the liver is feebly or irregularly performed, and a strict examination will occasionally detect slight, and still more rarely considerable, enlargement of this organ. The spleen also is always more or less enlarged, which may be detected by percussion, and careful examination with the fingers. Likewise may be met every degree of tympanitic distension, which symptom is rarely absent, but does not generally attract much notice before the eighth day.

The secretion of urine often, and I believe in most cases, will be found scanty, and occasionally almost entirely suppressed; and I have long since been led to consider that the giddiness, buzzing in the ears, stupor, and watchfulness, and other cerebral disturbances, more especially in the earlier stages, have much dependence on the tardy performance of this very important function; I have never found these symptoms present in any very remarkable degree, when I clearly ascertained the secretion of urine to be abundant. Great muscular debility generally characterizes this fever from its commencement until termination in convalescence.

In the treatment, alterative doses of calomel are given in combination with quinine and bicarbonate of soda. Mercury is a good remedy and indispensable except in the later stage of the disease. A thapsia plaster to the stomach, and the neutral mixture with a little tincture of opium, will always check nausea and vomiting. After the stools become healthy and fever lessened, the calomel is stopped, and the quinine, and soda bicarb., with piperin, continued until the patient is out of all danger. If tenderness or griping pains in the bowels occur, warmth externally, and ginger tea given as a drink, (made from the root ginger and sweetened), which is quite palatable and refreshing.

Opium in this disease is best avoided as bad results have occurred from its use. Where the fever is very high, ice placed to the wrists, and tr. aconite root three drops every two hours, has been of benefit; for the thirst, soda water flavored

with sassafras fresh from the fount is of marked value, the patient eagerly drinking and saying, how cooling it is in allaying the intense heat of the stomach. If stimulants are necessary, bicarbonate of ammonia is the best. I have always excluded everything like active purgatives, or any gastro-intestinal irritant, whether medicine or diet. In fine, the more rigidly I have adhered to the treatment above recommended, the more successful I have been in my practice.
60 Rutledge Ave.

UTERUS BILOCULARIS.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-first Annual Meeting of the American Medical Association, at Nashville, Tenn., May, 1890.

BY L. H. DUNNING, M.D.,
OF INDIANAPOLIS, IND.

Of the various forms of malformation of the uterus due to defective development of the ducts of Müller, uterus bilocularis shows the least deviation from the normal, and ranks as second in point of frequency of occurrence. Of the 271 cases of such malformations, the histories of which have been studied by the writer, there were of uterus bipartitus, 14; uterus unicornis, 18; uterus bicornis, 175; uterus bilocularis, 68. This represents all the cases on record and classified in the library of the Surgeon-General's Office to May 1, 1888.

The causes operating to produce these malformations are unknown. The inner walls of the ducts of Müller meet and coalesce previous to the eighth week of embryonic life. The septum disappears between the eighth and twelfth weeks. It is in these periods that the form of malformation is, in the main, determined. When the walls of the ducts fuse, but do not disappear by absorption, the malformation in question results. It is interesting to note, and difficult to understand, how the causes of the malformation leap over a period, and are apparent again, during the time for the development of the fundus.

The septum, which forms the partition wall between the two chambers of the uterus, may extend from the fundus to the external os, to the internal os, or only a portion of the way from the fundus to the internal os. In nearly one-half of the cases, there is a duplex condition of the vagina also, and there is not infrequently deficient development of the Fallopian tubes. It would appear natural that there should be developmental faults in these two structures as well as in the uterus, since they are developed from the same ducts of Müller as in the uterus.

When there is a duplex condition of the vagina, the partition may be complete or incomplete, or vary greatly in thickness, size and shape. The writer has been unable to find a single instance in which there was atresia of one vagina, while this is not uncommon when the defective forma-

tion of the vagina is associated with other forms of congenital malformation of the uterus. In external form and appearance, the uterus does not differ very much from the normal, though usually the body and fundus are broader. Sometimes there is a flatness or slight depression in the centre of the fundus, and sometimes there is a marked fissure. The os is more frequently single than double, yet occasionally will be found a perfectly duplex condition of the vagina, with a perfect cervix in each vaginal tube. So slight is the deviation from normal, in instances in which there is no vaginal septum and there is a single os, the deformity is likely to be overlooked. In the majority of the cases reported, the malformation was discovered either during labor or at autopsy. When there is a double vagina, and each half has within it a cervix and os, it is fair to conclude there is a duplex condition of the uterus, though this is not always true. The form and shape of the body and fundus must determine to which class it belongs. If there is a markedly bifid condition of the uterus, it does not belong to the class we are considering. The passage of two uterine sounds will yield much desired information. The presence of two chambers in the uterus can be readily demonstrated when there are two ora. The same may be said if the uterine septum extends to the external single os, or even if it extends only to the internal os, and the condition be suspected.

Pass a sound along each cervical canal, into the uterine cavity to the fundus. The approximation or divergence of the handles will indicate the directions of the canals.

If the points of the sounds cannot be made to meet, steel to steel, we know there is a complete partition, and if there is a deficiency, it may in this way be discovered. Should the divisions of the uterus into two chambers be incomplete; *i. e.*, should the septum extend but part of the way to the internal os, the fundus be but little deformed, and the os single, I know of no way of detecting the malformation in the non-pregnant woman, except by dilating the cervical canal, introducing the finger into the uterine canal, and making thorough exploration.

The true anatomical condition of the uterus in the patient in the case I am about to report was accidentally discovered.

October 16, 1888, I was urgently requested to visit Mrs. H., whom the messenger stated was flowing alarmingly. I responded at once, and quickly learned that two or three hours previously, Mrs. H. had had an abortion. She was three and one-half months in the period. The embryo had been expelled, and something the attendant supposed to be the placenta. The hæmorrhage had evidently been profuse, for the patient was pale from the loss of blood, and the pulse was weak and rapid. The placenta was retained and partially detached, hence the hæmorrhage. I quick-

ly prepared myself, and introduced one finger into the vagina, pushed it on into the widely dilated os. The finger readily entered the uterine cavity. By pressure of the right hand above the pubes, the uterus was brought well down, so that the fundus was reached by the left index finger within its cavity. Nothing was found within the uterine cavity except a few small clots, so I concluded I must have been mistaken in supposing there was a retained placenta. While washing my hands, the patient had a violent pain, and said she had passed a large clot of blood. There must be a retained placenta, yet how could I doubt my sense of touch. Sitting down by the bedside again, two fingers were introduced into the vagina, and one through the os into the uterus, when it came in contact with the placenta, which was separated from its uterine attachment and removed. I was puzzled, but the thought flashed into my mind, possibly there is a double-chambered uterus. So a further exploration was made. The os being largely dilated, two fingers were introduced into the uterine cavity, and the organ pushed well down by the hand upon the abdomen. The edge of a septum was felt about 1 inch above the internal os, and a finger made to pass upward, one on either side of it, each into a separate cavity, and thus was demonstrated the presence of the malformation known as uterus bilocularis. The right cavity, into which ovum developed, was much larger than the left; the walls were thicker and the surface more irregular. If any decidua had formed in the left cavity, it was never seen.

The patient had borne a healthy child three years previous to this abortion. She made a good recovery. She promised to call at my office as soon as she was able to be about, but went to her home in a distant city two weeks after the abortion; so I did not see her after she left the bed. The cause of the abortion is unknown. She had safely passed through pregnancy and delivery three years previously.

It might be hastily attributed to the insertion of the placenta upon the septum, yet study shows this is the only instance of abortion occurring in the seven cases of uterus subseptus in the list. It is, however, a fact worthy of notice that of the three patients who died during or after labor, in two the form of malformation was uterus subseptus (uterus bilocularis unicorporeus).

In a former paper¹ the writer presented a table showing the number of women pregnant, with some features of their subsequent histories. The table was correct so far as it went, but did not include his collection of cases reported in his first paper, and he did not discover until he began writing the present paper that this omission so materially affected the proper estimate of the rate of mortality of child-bearing women having such malformation of uterus. That table shows

¹ Journal American Medical Association, March 16, 1893

that of twenty-six child-bearing women, seven died in consequence of pregnancy and labor. This gave a death rate of 26.9 per cent. Three died of hæmorrhage, two of peritonitis, one of collapse, one of eclampsia. We wish to add to this list nine cases included in a former article, and the one reported in the paper to-day. In these ten cases there were sixteen pregnancies, twelve normal labors, three abortions, one artificial delivery and no deaths.

This addition to the table very much lessens our estimate of the dangers to the life of the woman having uterus bilocularis. Now we can approximately estimate the rate of mortality as 19.4 per cent. This addition, and this correction, strikingly shows the little scientific value of conclusions drawn from a small number of cases or from incomplete reports. The writer is strongly inclined to doubt the statement made in some of our text books, that a decidua is cast off and expelled from the unimpregnated chamber of the uterus at labor or shortly afterward. He is positive it did not occur in the first one of his cases and thinks it did not in the second one, for nothing answering the appearance of a decidua was seen by the attendants who were instructed to look for it. Very few reporters mention the existence of a decidua.

Considering all the facts it does not seem reasonable a decidua should develop to the extent of becoming ripe and of being cast off. That the first steps toward the formation of the decidua are taken is quite probable, but the complete development of the decidua vera and of the decidua reflexa is dependent upon the presence of the ovum. The site of that body determines the activity of the processes leading to their perfect development. Separate a part of the uterine cavity from this stimulating influence, and if we reason from analogy we must conclude the growth ceases.

Again, one must observe that the nutritive changes taking place in the unimpregnated horn are much less marked and in some instances are not at all similar to those occurring in the pregnant horn. This is perhaps more apparent in the bicornute uterus, but has been quite frequently demonstrated in the uterus bilocularis. The unimpregnated chamber of the uterus may, and sometimes does, take on menstrual activity even during the growth of the fœtus in its fellow.

Ross' case, reported in the American reprint of the London *Lancet* for November 1871, demonstrates this possibility. The patient miscarried between the fifth and sixth month. She informed the doctor there was another child in her womb, so Dr. Ross introduced his hand into the cavity and found it empty, though by palpation the uterus seemed quite large. Three months later this woman gave birth to a living child, and the bilocular condition of the uterus was then demonstrated. Between the miscar-

riage and the birth of the child the woman menstruated three times in a perfectly normal manner. This patient was seen and the diagnosis verified by Dr. Hall, of Brighton. It has been shown by repeated observations that sometimes the opposite sides of the uterus alternate in the performance of the menstrual function, and it is probable here may be found an explanation of the occurrence of menstruation in some women during pregnancy. No doubt in some of these instances there is a double uterus, one half is pregnant the other half menstruates.

In no instance did hæmatometra appear in a woman who had become pregnant. Two cases in the number pregnant are recorded. One is an anatomical specimen with little history, in the other there was occlusion of one os and the formation of a hæmatometra. It was opened by trocar and the opening kept patulous by the daily passage of a sound. It may be incidentally mentioned that in the other forms of congenital malformation of the uterus these accumulations of blood in the uterus resulting from menstruation and occlusion are not infrequently found, and experience has shown that the most effective means of cure, and the least dangerous to the life of the patient is to freely incise the tumor, empty the cavity, and wash it out with antiseptic solutions.

Menstrual disorders are not found common to this malformation, neither are its subjects more liable to diseases of the reproductive organs, hence our chief interest as practitioners will be in those cases where pregnancy occurs.

Such an occurrence exposes the patient to greater dangers than does pregnancy in women having normal uteri, the chief cause of danger being hæmorrhage. Septic peritonitis under our present forms of treatment should rarely occur. The lodgement of the fœtus in a chamber having no os or an impervious one is a remote possibility.

Irregular contractions of the uterus rendering labor tedious has been quite frequently observed, and the presence of a vaginal septum has in a number of instances retarded labor and necessitated operative interference. Various methods have been employed with uniformly good results. A thick vascular septum where immediate action is demanded is best served by the galvano- or thermo-cautery. The elastic ligature has been used in such a condition where haste is not imperative with good results. The thin, slightly vascular septum may be incised at once with knife or scissors. In not a few instances nature is able to overcome all obstruction either by dilating the parts or by tearing the septum before the descending head of the fœtus.

A SIMPLE AND EFFECTIVE METHOD OF ANÆSTHETIZING THE PHARYNGEAL TONSIL.

Read in the Section of Laryngology and Otology, at the Forty-first Annual Meeting of the American Medical Association, Nashville, Tenn., May, 1890.

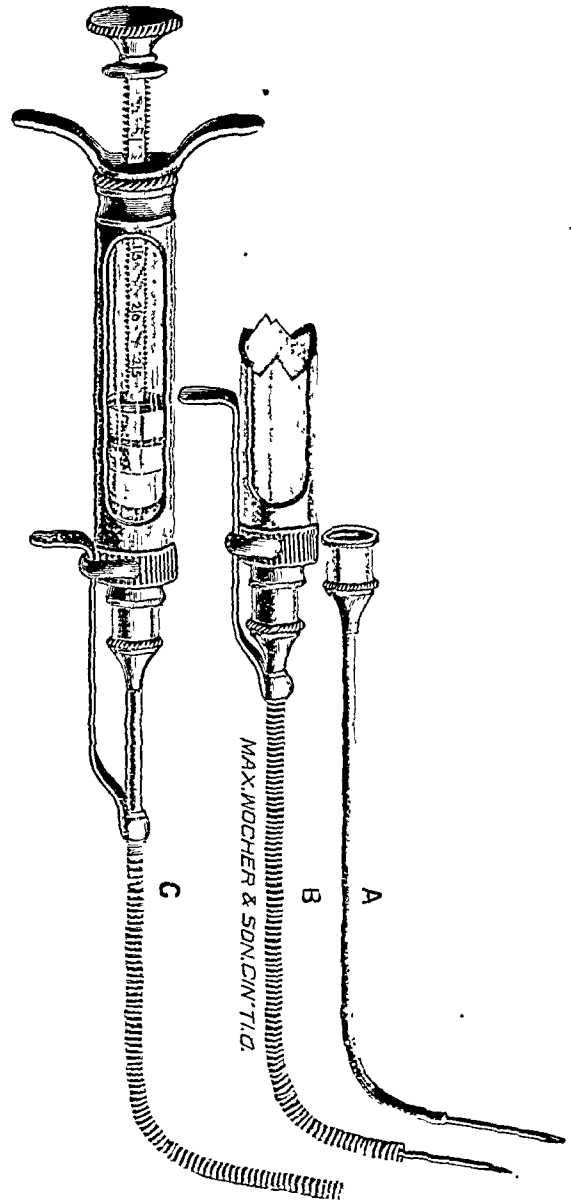
BY J. E. BOYLAN, M.D.,
OF CINCINNATI, O.

I wish to exhibit a simple instrument which, in my hands, has filled a long felt want. I am in the habit of removing hypertrophied adenoid tissue from the vault of the pharynx, with the patient in the sitting position, and without giving a general anæsthetic, to which I reluctantly resort, only in exceptional cases. In operating in this way, the greatest difficulty I had to contend with, was the very considerable pain which was invariably present, and which at times prompted the patient to refuse peremptorily a second introduction of the instrument. Local applications of cocaine, either by spraying through the nose, or worse, by means of the application of a brush to the naso-pharynx, proved most unsatisfactory; in the one case the sensitive nasal mucous membrane was chiefly affected by the cocaine; in the other, repeated introductions of the brush were usually impeded by reflex contractions of the muscles of the soft palate, and in neither was any satisfactory amount of anæsthesia produced.

In casting about for a remedy for this annoying feature, the following device suggested itself:

The instrument used consists of a very light and properly curved pharyngeal canula, to the tip of which an ordinary hypodermic needle is adjusted, and which is screwed in the usual way to the barrel of a graduated, glass, hypodermic syringe. To the posterior extremity of the barrel, finger rests are attached for greater convenience, and upon the thread of the piston rod a guard revolves, which is designed to regulate the amount of fluid injected. The canula was substituted for a less practicable, long, curved needle originally devised; when it is screwed to the syringe with the piston rod drawn, the instrument is a very handy one. With this syringe I am in the habit of injecting M. 15 of a 10 per cent. solution, or about gr. $1\frac{1}{2}$ of cocaine, into the tissue at the vault of the pharynx, before operating, and secure in this way, within five minutes, almost complete local anæsthesia. The pain of the operation, as compared with that after the application of cocaine, is almost null, an advantage which I am sure those who are in the habit of operating upon this tissue will appreciate. A further great advantage of this procedure is the ease and great celerity with which it is accomplished. The needle is readily introduced and quickly buried in the tissue in the median line, in cases where the application of a brush or mirror is out of the question. To meet the objection which might possibly be raised, that injury might be done to

adjacent parts during introduction, I have devised a movable spiral wire guard (Fig. B), which can be slipped upon, or removed from, the canula in an instant. During introduction the guard covers the needle, as shown in Fig. C, and is slid back upon the canula with a finger of the operating hand when the injection is made. In most



instances, however, I believe this to be an unnecessary precaution, and have seldom had occasion to resort to it. Having found this method more pleasing in practice than in theory, I take great pleasure in recommending it, feeling convinced that it will give general satisfaction.

MEDICAL PROGRESS.

THE EFFECT OF FREEZING UPON IMPURITIES CONTAINED IN WATER?—The Massachusetts State Board of Health, (June, 1890,) publish experiments with seventy-six samples of water, and 336 samples of ice from fifty-eight localities, to answer the above question.

In ice from polluted sources compared with water from the same, the experiments showed: 1. That in the ice the color and salt had been removed. 2. That all but 13 per cent. of the other impurities of the water, as shown by chemical analysis, had been removed. 3. The number of bacteria in the cubic centimetre were: For *snow* (one sample) 1,246; for *clear* ice (part of the same cake as above,) 6; for clear ice from an unpolluted source, 0. 4. The average of 12 samples from most polluted sources, 138. The number of bacteria varied much in different parts of the same cake.

From the examinations which have been made, it appears probable that when ice first forms in the surface of a pond or river, a considerable part of the impurity in the water near the surface is entangled in the first inch or less in depth, and that the ice which forms below this first inch, contains but a very small percentage of the impurities of the water. If snow falls upon the thin ice, causing it to sink so that the water from below saturates the snow, it will freeze without purification; or if rain falls upon the snow and freezes, the ice thus formed contains the impurities of the snow and of the rain water and of whatever else may have settled out of the air. The method often pursued, of flooding the ice of a pond, or river, by cutting holes through it, gives a layer of ice as impure as the water of which it is formed.

The purifying effect of freezing is greater upon substances in solution, than upon those in suspension. This is confirmed by the fact that a large part of the organic matter, one-half or three-quarters, and sometimes more that is found in good ice, is of particles in suspension, and is readily removed by filter paper.

From the average of all of the water and ice used for ice supplies, which they have examined, they find: The organic impurities of snow ice (the sum of the ammonias,) = 69 per cent. of the impurities of the water. The organic impurities of all the ice (except snow ice,) = 12 per cent. of the impurities of the water. The organic impurities of clear ice, = 6 per cent. of the impurities of the water. The *color* of waters was removed by freezing. The *salt* of the waters was nearly removed by freezing.

Of bacteria there were: 81 per cent. as many in *snow ice* as in the waters. 10 per cent. as many in *all other ice* as in the waters. 2 per cent. as many in *clear ice* as in the waters.

The results obtained lead to the conclusions: That while clear ice from polluted sources may contain so small a percentage of the impurities of the source, that it may not be regarded as injurious to the health, the snow ice, and any other, however clear, which may have been obtained by flooding, is likely to contain so large a percentage of the impurities of the source, and with these impurities, some of the disease germs which may be in the source that the Board feels bound to warn the public against using ice for domestic purposes that is obtained from a source polluted by sewage, beyond that which would be allowable in a drinking water, stream, or pond, and that in general it is much safer to use for drinking water, and for placing in contact with food, that portion of the ice that is clear.—*Public Health.*

THE TREATMENT OF TUBERCULAR ABSCESSES.—BILLROTH has again made a great impression on the surgical world by an article published a few days ago. Tuberculous abscesses have long been studied and treated unsuccessfully. For the past four years Billroth has been steadily experimenting with different means of treatment till now he has reached a conclusion, which, as it is based on his enormous clinical experience, cannot fail to excite great interest. Contrary to the usual method, he cuts down upon the abscess and lays it widely open; draws off the pus and cleans out the remotest corners; follows up any fistula to its point of origin, and scrapes the lining surface of the abscess until all the so-called membrane is removed. Sometimes it is necessary to open a thigh from the popliteal space to the tuberosity, but thoroughness in regard to the fistulæ is absolutely necessary. He then waits until the bleeding has ceased, of course removing the Esmarch, if one has been used, and when the wound is glazed by the serum he fills the abscess cavity with an emulsion of 10 parts of iodoform in 100 parts of glycerine. The edges of the wound are then brought together and stitched very carefully, so as to close the cavity perfectly without an opening for drainage. Thoroughly antiseptic dressings are applied and left on for several days. In most cases he gets primary union and the abscess heals, the iodoform emulsion being slowly absorbed as granulation goes on. Sometimes when antiseptics has been imperfect sloughing results, but even then the abscess generally heals from the bottom without recurrence. In a few cases the results were not good, but in these the operation was not sufficiently thorough, as some of the recesses were left untouched. Strange as it may seem, iodoform poisoning has been noticed in only a few cases, and in a very slight degree. Billroth has used the same method in tuberculous caries with equally good results, and now asks the profession to try the method. How does the iodoform act? It is

known that iodoform is not a perfect antiseptic, but a most powerful stimulant of granulation. To use Billroth's words, "Iodoform exerts a great formative influence on the smaller vessels, and these soon begin to grow out and multiply in an extraordinary manner by constant production of offshoots and capillary loops. This energetic growth of the living tissue seems to rob the microbes of their nourishment; in the struggle for existence they succumb to the growing cells of the vessel walls." As granulations secrete pus only when diseased, drainage is unnecessary. When the method is used in caries the action is the same, the osteophytes in this case being stimulated.—Vienna Letter, *Medical News*.

THE UROLOGY OF INFLUENZA.—Under the title "Urologia de l'Influenza," M. F. CHAPPELLE *pharmacien*, read an interesting paper before the Pharmaceutical Society of Lyons, on March 1, 1890 (*Lyon Médical*, 1er Juin, 1890, Tome LXIV., Vingt-deuxième Année, page 155). According to Hayem, all influenza patients have urobilin in excess in the urine. Huchard finds in "la grippe" a constant diminution of phosphates. Fernet, on the other hand, finds an increase of both urates and phosphates. Gautrelet ascertains that in the urine of these patients there is some hyperacidity, and an increase of indican. M. Chappelle himself finds three constant facts in the urine of "la grippe"—hyperacidity, a notable excess of phosphoric acid, and richness in coloring matters (chromogens). Taking an average living weight of 60 kilograms (132 lbs.), the normal excretion of phosphoric acid in twenty-four hours is 3 grams (46 grains). In the influenzal cases the numbers were 3.67 grams, 6.80, 3.43, 4.20, 4.06, 5.11, 4.90, 4.20, 7.35, 3.67 respectively. These values prove an excessive elimination of phosphoric acid in influenza. M. Chappelle thinks that Huchard obtained his low values in consequence of the hyperacidity of the urine. In testing with uranium in a very acid medium, the final reaction with ferro-cyanide would not be complete if the experimenter had not taken care to neutralize the medium.

As to the question of chromogens, indican (which was pointed out by Gautrelet as being constantly present) was met with by Chappelle four times only among the eleven specimens examined.

As regards urobilin, influenzal urines, far from containing it in excess, are often wanting in it. Twice only did Chappelle get the characteristic green fluorescence with ammonio-chloride of zinc.

Nevertheless, all the urines examined were rich in a chromogen formerly described by Neucki and Sieber, and by them named "urorosein." This substance is revealed by a rose tint which urine assumes after from one to three minutes' contact with pure hydrochloric acid or dilute

sulphuric acid. To 50 cubic centimetres of urine are added 5 cubic centimetres of sulphuric acid of the strength of 25 per cent., and some cubic centimetres of amylic alcohol. A beautiful red color is obtained on shaking carefully. Alkalis and alkaline carbonates decolorize the solution of urorosein, acids reproduce the coloration.

A fact which is also to be noted is the presence in certain influenzal urines of a derivative of skatol conjugated with sulphuric acid, long since described by Brieger. This compound gives birth to a violet coloring matter by the reaction of the hypochlorites in hydrochloric solution. This substance, insoluble in ether, is soluble in absolute alcohol. Chappelle met with it on two occasions. In one of these two samples of urine he was absolutely able to determine, in the product of the distilled urine, skatol itself, easily recognizable by its stinking odor, and by the red needles of picrate of skatol which the ethereal solution of picric acid forms in the distilled product.—*Dublin Journal Medical Sciences*.

THE DISINFECTING POWER OF CHLORIDE OF LIME.—In the Sanitary Reports of the Marine-Hospital Service for August 8, 1890, appears a translation, from the *Centralblatt für Bakteriologie und Parasitenkunde*, of a paper on the above subject, written by E. NISSEN for the *Zeitschrift für Hygiene*:

"Contrary to the previous statement of Koch, Sternberg, and later, Jäger, found that chloride of lime possesses decided germicide power. In consequence of these contradictory results, Nissen undertook, at the suggestion of Koch, a new experimental research to decide the question.

"The result of this shows that, as a matter of fact, chloride of lime has very great disinfecting power. At first microorganisms without spores, and having comparatively little resisting power, were tested, in bouillon culture, by Esmarch's method. As chloride of lime solution gives an abundant precipitate with bouillon, the cultures were first diluted. The chloride of lime solution was added, either filtered or not filtered. The result was the same in either case.

"The bacillus of typhoid fever was destroyed in bouillon cultures, at the end of five minutes, by 0.12 per cent. of chloride of lime; the cholera bacillus and anthrax bacilli without spores, by the same proportion, usually in one minute.

"Anthrax spores of moderate resisting power (killed in three minutes by flowing steam), dried on silk threads, were destroyed in fifteen to thirty minutes by a 5 per cent. solution of chloride of lime.

"Putrid fluids and fæces were very quickly disinfected by the addition of chloride of lime. Bouillon which had become putrid was, as a rule, thoroughly sterilized in five minutes by the addition of 0.1 per cent. In diarrhoeal fæces an ad-

dition of 0.5 per cent. of chloride of lime, either in solution or as a powder, destroyed the typhoid bacillus inside of ten minutes. Nissen thinks, therefore, that chloride of lime is especially suitable for the disinfection of bed-pans."

These results correspond entirely with those previously reported by the Committee on Disinfectants of the American Public Health Association, published in 1885.

EXPERIMENTAL STUDIES IN THE ANTISEPTIC PROPERTIES OF THE ESSENCES.—CODEAC and MESMIER have fixed a scale of the antiseptic value of the essences, based on the duration of their contact with the microorganisms. In their experiments they made use of the typhus bacillus and the bacillus of glanders to establish a comparison between the action of the microbicides in ordinary use and the action of the essences.

With regard to the typhus bacillus, it is shown that the essence of cinnamon has antiseptic properties very nearly equal to those of sublimate in the proportion of 1 to 1,000. Comparison with other antiseptic agents, as, for example, boric acid, carbolic acid, sulphate of copper, and iodoform, is altogether favorable to the essences. Many essences check the development of the bacillus after a few hours or minutes, while the other antiseptic agents are effective only after the lapse of the same number of days. The antiseptic action of the several essences is graded down to those which are effective against the bacillus of typhus only after ten days' contact.

Following the same method, Codeac and Mesmier experimented with the bacillus of glanders, and proved the antiseptic action of the essences to be the same for glanders as for the bacillus of typhus. Mineral antiseptics, however, exert an influence on the microorganism of glanders superior to that which they exert on the typhus bacillus.

The experiments conducted by Codeac and Mesmier confirm those of Chamberlane, who tested the antiseptic properties of the essences in a state of vapor and in direct contact with the bacillus anthracis. The result of these investigations is that all essences possess variable antiseptic properties, and that some possess them in as high a degree as the most active chemical antiseptics, sublimate, iodoform, and sulphate of copper.

Medical antiseptics is not of recent origin. The ancients practiced disinfection, though they were ignorant of the term, and the Egyptians prevented the decomposition of bodies by the use of essences and perfumes.—*Sanitary Reports, Marine-Hospital Bureau.*

PLACENTA PRÆVIA.—At the annual meeting of the North of Ireland Branch of the British Medical Association, DR. DEMPSEY read the

notes of a case of placenta prævia which he had treated successfully by the introduction of a large piece of solid alum up against the os, and maintained in close contact with it by a vaginal tampon. He claimed for it a number of advantages.

1. It produces constriction of the uterine sinuses by hardening and contracting the uterine fibres in the lower segment of the uterus, against the outer surface of which it is in contact.
2. It appears to assist in causing thrombosis of the sinuses.
3. It produces a tenacious, mortar-like coagulation of the effused blood, which acts as an additional tampon in the vagina.
4. It does not prevent dilatation; and,
- 5, from the limited experience of it, it appears to obviate the necessity for the usual operative measures required in placenta prævia until the os is sufficiently dilated to permit of them with safety.

In the case in point, the patient was a multipara between the seventh and eighth months of pregnancy; active hæmorrhage was going on before the introduction of the alum, yet none occurred afterwards, though the placenta was central, and dilatation had proceeded almost to the full extent. The alum had been left in for seventeen hours. Immediately after its removal violent hæmorrhage again occurred, but delivery by version was easy of accomplishment without any injury to the maternal structures. Dr. Dempsey also showed a most interesting specimen of placenta prævia, where abortion had taken place at the fifth month of gestation, and which had been treated by the same method as the above. The placenta was centrally attached over the os in this case also, and the breech presented; but, owing to the very extensive uterine attachment of the placenta, the fœtus was born enclosed within the placenta. Only a very small portion of the amniotic membrane could be seen on one side of the fœtus, like a small window in the placenta. The fundal part of the placenta was the thickest, and the funis was attached to this portion.—*Brit. Med. Journal.*

CREOLIN IN ERYSIPELAS AND ECZEMA.—DR. C. G. ROTHE (*Memorabilien*, July, 1880) calls attention to his earlier publications, in which he recommended a solution of carbolic acid and iodine in the treatment of erysipelas; while the results with these drugs were excellent in some cases, they proved irritating to the skin. Of late he has employed a paste containing about 3 per cent. of creolin, applied freely over the affected part. The application is very pleasant, and the subjective sensations are "cooling." Results have been excellent, not only in erysipelas, in which the application was rapidly followed by a decrease in inflammation, but also in acute eczema. In chronic eczema with formation of crusts and thickening of the skin, nothing is to be expected from the use of the drug.

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SATURDAY, AUGUST 23, 1890.

THE FAILURE OF OREXIN AS A STOMACHIC.

Our attention was first called to the use of orexin by the paper of PROFESSOR F. PENZOLDT in the *Therapeutische Monatshefte*, for February, 1890. The term was applied to the hydrochlorate of phenyldihydrochinazolin ($C_{14}H_{12}N_2HCl$) on account of its supposed properties as an appetizer and digestive. It is a whitish powder, having a bitter, burning taste; and, used experimentally on animals, was toxic only in large doses, and had no escharotic action on the mucous membrane of the conjunctiva, stomach, or subcutaneous cellular tissue. In man, a dose of $7\frac{1}{2}$ grains produced a good appetite; and it was ascertained, by examinations with the stomach tube of test meals during their digestion, that $3\frac{3}{4}$ grains of the drug reduced the digestive period of wheat bread half an hour, and of beef-steak by thirty to thirty-eight minutes. With $7\frac{1}{2}$ grains, the digestive period of bread was reduced by three-quarters of an hour, and of beefsteak by one hour.

Therapeutically it was employed to relieve anorexia consequent upon surgical operations, and in tuberculosis, chlorosis, and heart affections. In nineteen of thirty-six cases there was marked improvement, eight cases were benefited, three cases were moderately improved, and six cases were not improved. The dose was $7\frac{1}{2}$ grains, three times a day, given in capsules and followed by a cup of meat broth or warm water. A detailed history of each case treated was given.

Naturally so important an addition to therapeutics was not neglected, and in the *Prager*

Medicinische Wochenschrift for March, DR. GLÜCK-ZIEGEL reported seventeen cases in which he had used orexin, in doses smaller than those used by Penzoldt, but without obtaining any improvement of the appetite or digestion. Somewhat later IMREDY reported, in the *Pharmaceutische Post*, several cases in which he had employed orexin, in the same dose as Penzoldt, not only without any resultant improvement in the appetite, but even with consequent nausea in a few cases. Lastly MARTIUS, in the *Deutscher Medicinische Wochenschrift*, reported that in twenty-nine cases, the appetite was slightly improved in five while no effect was produced in the balance of the cases. And in the five cases that improved the same result was obtained by using pills of marshmallow similar in size to those of orexin. In order to exclude the influence of imagination in prompting a favorable report Martius did not let his patients learn the result he expected to obtain with orexin. Verbally we have heard of similar failures to obtain beneficial results from the drug, by observers in this country.

No observer, therefore, has corroborated Penzoldt's successful results that were possibly consequent upon the patient's desire to have an appetite. While it would be very desirable to have such a remedy at our command, as orexin was claimed to be, we cannot regret that this drug has failed in realizing what was expected of it. From Penzoldt's "*Lehrbuch der klinischer Argneibehandlung*," we learn that 1 gram (fifteen grains) of the drug costs twenty phennig (four cents); like antipyrin it has been patented, and the manufacturers sell it in this country in small bottles, containing fifty tablets of $1\frac{1}{2}$ grains each for a dollar and a half. As this is more than seven times the value of the drug, in fifty tablets, and it is not sold at all in bulk, we are glad to show our readers, as we have practically learned ourselves, that this expensive medication is practically useless.

MEDICAL LEGISLATORS AND LEGISLATION IN FRANCE.—The medical members of the French parliament have formed an association with the view of taking joint action upon proposed medical legislation. Medicine is well represented in this body, upwards of eighty being physicians.

ELECTROCUTION SO-CALLED AND ITS LESSON.

The Excelsior State has had its sensation, and the mystery of death is still practically unsolved. The public, too, who for weeks had been keyed up to the point of highest expectation have been disappointed. To be sure, the press gave its space writers the largest liberty, and the wood-cut artists the broadest discretion, but what beside the grewsome details of a judicial death has been gained by the morbidly curious? Much more may be said in the streets about volts, and the death-dealing capacities of different electrical systems, but what profit has there been? The press, the great servitor of morals, saw fit to disobey the legal injunction of privacy, and thanks to its so-called enterprise every household in America and Europe knew the plot of the drama almost as soon as the death of the culprit was pronounced.

As medical journalists we can hardly be expected to discuss the phases of the affair, without being open to the charge of departure from a settled policy, and therefore avoid comments upon alleged bungling, and illy concealed attempts to prove that one "commercial apparatus" was more lethal than another. Nor with the so-called barbarities of the mode have we much to do,—nor with the sentimentalities which may have inspired the legislation, nor with the psychological problem offered by the prison-life of the culprit, whom posterity may endow with a unique immortality for having been the first, perhaps the only one, in all the ages to suffer, what the advocates of various modes of execution are pleased to call a "scientific martyrdom."

We suppose that until the dawn of the millennium there will be reversions to an ancient savagery, when murder was no crime—that there will be individuals, who dread the penalty rather than abhor the crime—that there will be criminals who would rather die game than penitent—that there will be enthusiastic executioners and omniscient savants, but we are optimistic enough to believe that the times are growing ripe for the appreciation of deeds that elevate and for the patronage of a daily literature that may be admitted without a demur into the home-circle. We care not how the society of the future may punish offenders against its laws, whether by the rope or by the guillotine, by the garrote or by poison, by musket or by faggot, since many of the world's

martyrs have dignified all of these modes—but we certainly do object to the raree-shows of the State under the guise of retributive examples. Let us have, if you please, life imprisonment, without hope of pardon, the mysteries of the Bridge of Sighs, and the mental torments of "The Man without a Country," but let us have no dramas, with daily rehearsals and miserable failures. The noblest of all lands have not craved euthanasia for themselves, why force it upon criminals? We advocate no cruelties and deny no mercies, but we can not divest ourselves of the idea that the phrase "court-martialed and shot" is a much more awe-inspiring deterrent from crime than the reported dying speech.

Meanwhile as a home lesson to ourselves, let us not surrender a profession, often dignified by the world to the coming satirist, by talking to the multitude through an interview, but let us do our own proper work by striving to prolong life. We serve neither God, our country, nor ourselves by ventilating quarrels and exhibiting in safer and milder forms those very passions, which have wrought so much disaster among the less intelligent to whom the personal pronoun is the all-in-all. Amid all temptations it were well to observe the teachings of a very old code, which enjoins upon all to "have peace with one another." We neither earn nor deserve respect by bandying epithets, unless it be our aim to please the many who clamor for a little comedy to relieve the gloom of the tragedy. As was said by an eminent divine of hanging, we may put ourselves to better uses.

WRITER'S CRAMP AND ALLIED AFFECTIONS

MR. JULIUS WOLFF, writing master of Frankfurt-on-the-Main and London, writes to the *British Medical Journal*, July 19, of his special method for the treatment of neurosis of the hand. This phrase he considers to be preferable to that used more frequently, and restricted in its application to the muscular debility that befalls the penman, whereas the affection finds examples in many other occupations, as the telegraphist, the painter, the violinist, the embroiderer, the cigarmaker and others. His method of treatment, which has been utilized by CHARCOT, NUSSBAUM, FEFER and others, is by massage and gymnastic exercises, both of which are so devised as to prim-

ily influence the muscles and nerves of the affected part, and secondarily to act upon the sychically affected centre; that is, the morbidly isturbed will-power of the patient. This latter unction of the treatment he really set in the more rominent place, and he speaks of it as the more important and essential purpose, in that he hopes hereby to moderate the morbid action, or rather, y drawing the attention from the affected part, influence some new action of the mind. This is the only secret of his treatment, the untiring and intelligent efforts to practice his material means in strengthening exercises, and at the same time direct the patient's attention to a neural field. Mr. Wolff has the theory that occupational cramp does not occur in the cases of persons who are not hyperæsthetic neuropathics, which view he is able to substantiate by numerous instances in which there has been a nervous hyperæsthesia apart from, superadded to or transferred from the hand to other members. In some instances he has seen the trouble migrate from the right to the left side. In one case, he has observed synchronous movements in the right great toe and in the right thumb when the patient essayed to write. The success of the treatment largely depends upon the ability of the operator to win the confidence and secure the diligent coöperation of the patient. When he is able to secure this assistance, the prognosis is favorable, and a permanent cure may be expected. But the permanence of the cure depends entirely upon a use of gymnastic exercises, even after the operator has discontinued the treatment by massage. Cases of relapse are not impossible, but they have not occurred, in the experience of Mr. Wolff, where the patient has been faithful in the use of the prescribed gymnastic exercises.

EDITORIAL NOTES.

PAPERS MISLAID.—We regret exceedingly that the package which contained the papers presented in the Medical Section at Nashville, in some unaccountable manner, has gone astray. It has often been the custom for Secretaries of Sections to retain the papers for a few days, and as soon as they were properly arranged to forward them to THE JOURNAL. For a time it was supposed that these were thus held. But later correspondence reveals the fact that they were arranged by

the Secretary at the time, and left for delivery at Nashville. A most diligent correspondence and searching has failed thus far to discover them. It is our hope that the package may still be recovered. In the meantime, we have corresponded with each of the writers of papers, and in most cases will be able to secure duplicate copies for publication.

We deem this explanation due both to writers and to readers, thus giving the reason why the Section on Medicine has not been duly represented, in the papers already published.

HONORARY PRESIDENTS.—The following were made Honorary Presidents at the Medical Congress in Berlin: For the United States, John S. Billings, M.D.; Austria, Professor Billroth; England, Dr. Stokes; France, Professor Bouchard; Italy, Dr. Bacelli; Germany, Carl Theodore, Duke of Bavaria.

CANVASSERS FOR THE JOURNAL.—If members of the Association will bring to the attention of medical students the fact that a liberal commission will be paid for the securing of new subscribers to THE JOURNAL, it may in many instances be helpful to those who are striving to obtain a medical education. In almost any prominent locality an enterprising canvasser could secure subscriptions which would well compensate for the effort. Correspondence invited. Address "JOURNAL AMERICAN MEDICAL ASSOCIATION, 68 Wabash Ave., Chicago, Ill."

THE ADVANCE OF CHOLERA.—The latest reports, August 17, announce that on August 16 there were thirty-four deaths from cholera in Mecca, eighteen in Cairo and one in Madrid. Traveling with the moving throngs of benighted pilgrims and unrestrained by sanitary cordons, we may well anticipate the further spread of this disease along the maritime routes of the Mediterranean and the Red seas. France and Italy are commendable in their exertions to prevent its incursions, but with what measure of success it yet remains to be seen.

THE ESTIMATE OF THE BERLIN MEDICAL CONGRESS.—The general verdict we believe will be favorable. The attendance has been much larger than was anticipated, and more or less inconvenience was the result. The heat during the days of session was excessive, and added to the

discomfort. The arrangement of rooms was such as to render the presentation of papers at times difficult, and the want of attention to papers not presented in the German language was a matter of criticism. These were minor considerations and should hardly enter into the estimate of results. The meeting, face to face, of such a body of notable men, must create an abiding inspiration to more extended and better work, and we are confident that the result more valuable than all others will be found in the writings of these men. We believe that the consensus of opinion as held by medical men in 1890 will be found in the forthcoming volume of Transactions.

CLOSING OF THE MEDICAL CONGRESS.—In the cable dispatches of the *N. Y. Medical Record*, we have a brief outline of the closing exercises of the Berlin Congress. Prof. Virchow, in his farewell address, expressed the hope that members would carry with them the conviction that Germany was great in peaceful pursuits—that in science there was no division of races or religions. He thanked the Imperial authorities of his country for the interest they had manifested in the welfare of the Congress, and expressed his hope to greet again his fellow-members three years hence in Rome. Brief addresses and parting words of friendly import were offered by the various foreign representatives. Dr. Billings, on the part of the American delegates, expressed their thanks for the courtesies which they had received.

THE OBJECT OF MEDICAL ASSOCIATIONS.—A brief synopsis of the address of Professor Virchow at the opening of the Medical Congress is given by cable to the *Medical News*, in which he states the value of international meetings to be that of uniting the medical world in the struggle against disease and death, and that the object of medical associations should not be to get more pay and shorter hours, but to increase our ability for research, and to diminish the dangers that surround humanity.

INTERNATIONAL MEDICAL CONGRESS.—In response to the addresses of welcome at the Berlin Medical Congress, Surgeon-General Hamilton, of the Marine-Hospital Service of the United States, said:

Mr. President and Colleagues:—The pleasant duty of responding, on behalf of the American delegates, to the gracious welcome extended to us, has been assigned to

me. America is grateful for the generous attendance at the last Congress, and I assure you that she takes a deep interest in the success of this Congress—a success now assured by reason of the Herculean labors of the Secretary-General, Dr. Lassar—she has taken an unusually deep interest, because of the respect and admiration her physicians feel for the profound learning and social graces of the physicians of the Old World, and particularly of our present hosts.

We came to see and appreciate your greatness; I say this in all sincerity, for the United States, the product of a single century, does not expect or pretend to equal in the fine arts and sciences the product of all antecedent time as represented here. Having seen, we agree that "the half has not been told us."

Here are gathered in council many of the men whose books we have read, we may see the rooms in which they teach, speak to them face to face, and we will carry to our homes and lecture rooms the most pleasant and delightful recollection of Berlin and Germany.

We also join in congratulations with our confrères of other countries, that we have as President one whose fame has been truly international for more than a quarter of a century; whose supremacy in pathological medicine is recognized in every country inhabited by civilized man. Happy the German medical profession in possessing a Virchow, and thrice fortunate the Congress over which he presides!

In the International flower garden the delicate flowerlet newly arrived, glistening in the morning sun, naturally takes a more retired place than the full blown rose, and so the relative infrequency of American names on the program is natural evidence that our delegates prefer to hear your mature reflections, rather put forward our own.

In the name of my colleagues I again thank you for this gracious and hospitable welcome.

The United States was given the precedence in the order of speaking, on account of the last Congress having been held in America.

THE memory of the late Miss Alice Fisher, the originator and for many years the head nurse of the Training School for Nurses at the Philadelphia Hospital, has been publicly honored, in the erection of a brass tablet at that institution. The unveiling took place June 16.

A REPRESENTATIVE MEETING.—We doubt if in the world's history there has been another so remarkable assemblage of illustrious men as was convened in the Congress at Berlin. Over five thousand delegates were present, of whom one-half were foreigners. It is idle to enumerate the list of eminent living men that were present. The nations were ably represented by those whose names are familiar to the profession the world over. In due time, the real benefit of this gathering will be apparent, as the papers they presented shall be given to the press.

TOPICS OF THE WEEK.

LATIN, ITS USES AND EDUCATIONAL VALUE.

The subject of the preliminary education of medical students, quite as much commands the serious consideration of medical men in Europe as it does in America.

At the Fifty-Eighth Annual Meeting of the British Medical Association held at Birmingham July 29, the President, Dr. Willoughby Francis Wade, in concluding his address, made the following reference to Latin and its educational value.

"Let us see then what the uses are to which a medical man does actually put his knowledge of Latin.

"1. He writes in his prescriptions the Latin names of drugs instead of their English or Anglicised ones.

"2. He writes in Latin his instructions to the dispenser for compounding the drugs so ordered.

"He writes in Latin his instructions to the patient as to the quantities in, and the times at which medicines are to be taken, or as to the manner applications are to be used. These are the only uses to which he puts his costly knowledge. It must also be allowed that he can, if he is so disposed, read easy pages from *Celsus*.

"Now, I submit to you that the necessity for doing the three former things is of a purely arbitrary and artificial character. And, further, that the necessity, such as it is, has already crumbled, and continues to crumble. I will give reasons for this allegation. As to writing the names of drugs in Latin: In accordance with the Medical Act of Parliament, the General Medical Council publishes a *Pharmacopæia*—our sole legal authority for the drugs we use. In this *Pharmacopæia* the Latin names are given, it is true, but all the English names are also given. As to writing in Latin our instructions to the dispenser: All directions to the compounder are, in the *British Pharmacopæia*, written in English, of which no Latin version is given. The Conjoint Board goes even further. If you refer to the 'Synopsis indicating the Range of Subjects in the Examination on Materia Medica and Pharmacy' published by this body, you will find all the drugs specified are called by their English names only; no Latin synonyms at all. For example, we find 'silver nitrate' not 'argenti nitras;' 'Acids—hydrochloric, nitric'—etc., not 'acidum hydrochloricum,' etc., and so on through the whole list of nearly two pages. The General Medical Council at their late session received from the Royal College of Physicians a list of proposed additions to the *Pharmacopæia*. That list was, I believe, in English only. So far, then, as the example of these representative bodies goes, it lends little countenance to the still customary habit of writing the two first portions of a prescription in Latin. And it seems to me that we should be equally in order if we used those English names with which the Council has authoritatively provided us. Lastly, as regards the instructions to patients how to take their medicines and use their appliances: It is common knowledge that a large and increasing number of practitioners invariably write these in English. And it is equally certain that those who do so are as often to be found in the higher grades of the profession as in any

other. I am in no way concerned to defend this innovation, having personally always followed the ancient practice. The hypothetical student of the easy bits of *Celsus* I will pass by on the other side. If you desire to state your belief in his non-existence, your literary memory will supply you with a suitable form of expression. That, from an instructional point of view, the compulsory study of Latin rests upon an artificial basis I claim to have proved.

"There remains the vital question of its educational value. At a remote period all knowledge beyond the most elementary was communicated, and communicable solely, in a dead language, and chiefly in Latin. A deeply rooted feeling, which probably originated in that period, still exists. It is that a nonclassical education is so imperfect as to be unworthy of a gentleman. Or, to use a word which has become obsolete in polite society without leaving a successor, such an education is not 'genteel.' That has but little to do with its intrinsic merits, but it lends to the maintenance of the custom the support of a stupendous inertia. There are, it must be admitted, large numbers of persons who are keenly alive to the salutary and expansive effects produced upon their own minds by the classical element in their own education. These naturally believe that such effects could have been produced by no other means. Now, it is no part of my purpose to disparage classical education. I do not despise, and I desire not to undervalue, any branch of human knowledge. We can examine no one of them without perceiving that unwearied industry, exceeding ingenuity, and many high intellectual qualities have been engaged in bringing them to their present state of perfection. All this is at least as true of classical as of any other branch of learning. Nor do I deny that such studies open up paths of literature of the highest interest, and in some respects all their own. I will grant all that may be claimed for them short of this—that there is no other course of education which can equally cultivate, strengthen, and expand all the faculties of the brain or qualities of the intellect. Whatever may be the apparent superiority of any means of education, they must be submitted to certain tests before their actual value can be decided. We have to enquire, not merely into their real value, but into their relative value. The latter is subject to the determination of two points. Is there any other system of which the educational value is equal, and of which the instructional value is superior? How far is it suitable for the class of minds upon which it is intended to impose it?

"The first question has already been dealt with so far as it concerns our present purpose. The second question I shall not answer myself. I prefer to place before you the words of one whom no one will accuse of indifference to classical acquirements. They are these: 'In my opinion, classical education is in itself the very best of all for those who have a certain tendency towards it, and those whose circumstances are such as will enable them not to be content with the merest rudiments, but who will proceed to the point at which they will realize some solid attainments. Terrible errors have undoubtedly been committed in the past—and in the past I include the days

of my own experience—in endeavoring to thrust the classics down the throats of everybody of a certain rank, quite irrespective of capacity and circumstance. I always bear this in mind . . . that the main purpose of education is to make the human mind a supple, effective, strong, available instrument for whatever purposes it may be required to be applied to.' Such is the evidence formally given before an Education Committee of the Flintshire County Council by Mr. Gladstone. On this, I propose three questions: Does the Latinity exacted from every medical student answer best to the description of 'merest rudiments' or of 'solid attainments?' Are—as regards medical students—'the terrible errors of the past' errors of the past only? Can the mind of a medical student be made as supple, effective, strong, and available an instrument for his purposes—so far as Nature has endowed him with faculties—by no education unless it includes Latin? I desire in future to give to the poorer student the greatest possible share of those advantages which are now enjoyed by the rich. Latin certainly stands in the way. He cannot have all. Which is the more important? Latin, or some other element of the rich man's more extended education? Should not, then, Latin be placed in the list of optional subjects? is one question which I should like to see discussed by the General Medical Council. But, indeed, this is not the only one. When the Council originally undertook to consider the subject of preliminary education, they would seem, judging by results, to have proposed to themselves this question: How best to secure that candidates shall have had that which commonly passes under the denomination of a public school education? For this I do not blame them. To have done otherwise would have put them into disaccord with public opinion. This no prudent body would do. However little it may owe its position to public suffrages, public opinion is the base of its operations. In thirty-two years great educational changes have come to pass in this country. I desire to see the whole question of preliminary education reopened, reinvestigated, reargued; and I will briefly state how, as it seems to me, the subject might be best dealt with.

"Let there be a Select Committee of the Council sitting with open doors. Let it take the evidence of two or three persons carefully selected from each of the following classes: public school masters, her majesty's inspectors of schools, head masters of training colleges, head masters of Board Schools. Let the primary subject of investigation be thus stated: In what way can it be best ascertained that a boy, aged 15, is of not less than average intellectual capacity? that he has for ten years been so trained as to have his intellect generally developed? The question is not what he has learned, but how he has learned it; not how much knowledge he has acquired, but whether he understands what he has acquired; not what he has thought about, but whether he has been trained to think at all.

"Inquiry as to what subjects will best serve such training, and which are the most useful in after years would, of course, follow; but if his then intellectual status is satisfactory, the boy is fit for differentiation into a

science student. As to this part of his education, an analogous inquiry with the assistance of experts in science teaching should be undertaken. It is not superfluous to observe that there are at the present moment eighty-nine independent examinations, scattered all over the world, any one of which is accepted as qualifying for registration as a medical student. It is difficult to see how, under such circumstances, the Council can exercise a proper control over preliminary education; but it must in fairness be admitted that this is a matter of great difficulty, and with more than one side.

"I have to-night stated to you facts which I believe to be accurate, and arguments which I have striven to make fair. I have thus arrived at conclusions which I believe to be reasonable; these are also before you. I do not ask you to accept them; I only ask you to reconsider them at your leisure, and to form your own opinion of their validity. But you may say, What use in so spending time? Is there any probability that, however we may desire them, any of these things will be done? My answer is this: the General Medical Council consists of a number of men, many of whom are highly distinguished, and there is no one of them to whom I would refuse the credit of being earnest, thoughtful, and conscientious. I believe them all to be sincerely desirous to regulate their actions in accordance with public medical opinion. It is for you, if you are interested in these matters, to make that opinion. If you do so, I have complete confidence that what you desire will be done in substance; the precise form is a matter of no importance.

"Should you thus secure such an investigation into the preliminary and scientific education of medical students, the results might, I feel assured they would, benefit other classes besides our own. They would tend to avert a danger which now threatens schools of all grades. This danger is that instruction may crowd out education; for indeed it is possible—*propter scientiam sciendi perdere causas*."—*Brit. Med. Journal*.

WHAT WE WANT.

What we want is the recorded observations of workers in the medical vineyard. Men who hibernate in their closets and indulge in day dreams may evolve by means of the proper equipment for scientific investigations that which is of value, but the practical worker can apply these deductions and test them in the severe school of experience; and we need just such evidence as these practical workers can give.—*Medical Mirror*.

THE NEW GERMAN PHARMACOPŒIA.

The new German Pharmacopœia, which will come into force next New Year's Day, will contain fifty drugs not included in the current work—such as antipyrin, condurang wine, gutta percha, naphthaline, naphthol, phenacetin, salol and sulphonal. For eighteen of these, formulæ are given. Fifty-eight of the drugs contained in the present pharmacopœia will not be found in the new one. One of these is quinine wine.

PRACTICAL NOTES.

THE MODES OF ADMINISTERING CARDIAC TONICS.

The therapeutics of cardiac affections has been greatly advanced recently, not only by the addition of numerous cardiac tonics to our list of remedies, but also by the acquirement of important details in the administration of the older remedies, by which their efficiency has been greatly advanced.

Gauthier, especially, has devoted himself to the study of this subject, and an analysis of his work as published in the *Wiener medizinische Blätter* of May 22, 1890, is well worthy of notice.

As is well known, the administration of digitalis in the form of powder or pill is apt to produce a vomiting or diarrhoea. The best form is that of an infusion made by macerating the digitalis leaves, and, when the time permits, it is this preparation which should always be used as the one which gives the most prolonged and intense action on the heart, and which is the most efficacious in producing diuresis. The infusion should be given in gradually decreasing doses. Digitalin is by no means a constant preparation, and it does not possess all the properties of the digitalis leaves. Nevertheless, the crystalized digitalin is of use where an extremely rapid action is desired, although ordinarily its action is too intense, and, therefore, dangerous, while its subcutaneous employment is extremely painful, and often produces abscesses.

Convallaria is also best employed in the form of an infusion, 8 to 10 parts being macerated in 1000 of water, to which syrup may be added, and administered the day in which it is made.

Convallarine, the active principle, may be employed in doses of $\frac{1}{6}$ to $\frac{3}{4}$ or $1\frac{1}{2}$ grains.

Strophanthus is best given in the tincture (the one official in the English Codex being the best) in 5-drop doses three times daily, although 10 to 20 drops may be given once or twice in the twenty-four hours in a single dose.

Adonis may be employed in the form of an infusion or decoction, or its active principle, adonidine, may be given. The infusion seems to be inconstant in its activity, and both of the watery preparations have an extremely bitter taste, which must be masked by syrup. Adonidine may be given in the quantity of from $\frac{1}{6}$ to $\frac{1}{2}$ grain in twenty-four hours. Its toxic action is ten times greater than that of digitalis. Caffeine is likewise a reliable remedy, provided it is given in sufficient dose, 15 to 30 grains being ordinarily required. This dose, should, however, not be exceeded without great care, as in larger quantities it is not free from danger.

The salts of caffeine are nearly insoluble in water, and are, therefore, not suitable for subcutaneous injections, although the double salts—

the benzoate of sodium and caffeine—is an exceedingly valuable preparation. Sparteine may be used, either in the form of an infusion or decoction of the plant; or its active principle, sulphate of sparteine, may be employed, the latter being especially valuable for its action on the heart in doses of from $\frac{3}{4}$ to 4 grains, while the infusion possesses marked diuretic properties.—*Therapeutic Gazette*.

ANOTHER ANTISEPTIC, LYSOL.

Dr. Gerlach, of Wiesbaden, has described the antiseptic power and advantages of lysol, which he has recently used with much success in Wiesbaden. As a bactericide, it is more powerful than carbolic acid or creolin; it is less poisonous than either of these two; and, finally, it is much cheaper than either. Lysol is not confined to use in closets, stools, washings, etc., but may be applied anywhere in the domain of medicine without any danger of poisoning or of discomfort. The active principle in lysol is the creosote. Gerlach believes that the drug will be found to be of real value, and that it will come into general use.—*Pharmaceutical Record*.

MAIRET ON THE PSYCHOLOGICAL ACTION OF CHLORALAMIDE.

The author carried out a series of observations in respect to the action of chloralamide on the heart. It is claimed for this hypnotic of recent introduction that it has no effect on the cardiac beat, comparable to that of chloral. He has satisfied himself, however, that in whatever dose it is given, large or small, the pulse-rate promptly undergoes a marked and immediate acceleration. At the same time, there is flushing of the head and face. Another observation of note is the supervention of a period of excitement after the ingestion of chloralamide.—*London Medical Recorder*.

PERCHLORIDE OF IRON IN LEUCORRHEA.

Of all remedies for simple leucorrhœa, the old tincture of perchloride of iron is the best, combined with hyoscyamus, opium, hop or Indian hemp, when the mucous membrane is in a state of irritation. Tepid or cold water injections, cold hip baths, etc., are useful local applications, with rest, and avoidance of occupations involving prolonged standing or pedal exercise.

Sometimes tannin, zinc or alum are valuable additions to the injections. When the discharge emanates from the glands of the os uteri, local applications of belladonna and bicarbonate of potash are serviceable, two ounces of tincture and a teaspoonful of the alkali to a pint of water.—*Editorial Pharm. Era*.

SOCIETY PROCEEDINGS.

Johns Hopkins Hospital Medical Society.

Stated Meeting, February 17, 1890.

DR. WM. H. WELCH reported results of his
BACTERIOLOGICAL EXAMINATIONS OF CASES OF
ACUTE CROUPOUS PNEUMONIA,

and exhibited cultures and microscopical specimens of the microorganisms found in these cases. In all of the cases examined, ten in number, the diplococcus pneumonia was found and isolated in pure culture. This organism is probably constantly present in croupous pneumonia, and the evidence that it is the specific cause of this disease is very strong. In the cases examined by Dr. Welch, roll cultures or plate cultures were made from the affected parts of the lungs, from the spleen, from complicating lesions and frequently from the blood and other situations. Nutrient agar, glycerine agar and gelatine agar, according to Guarnieri's formula, were the media usually employed for this purpose. The growth of the pneumococcus on the last named medium is particularly luxuriant. In addition mice and rabbits were inoculated with bits of hepatized lung, with the spleen, etc. In one instance the presence of the pneumococcus would have been overlooked in consequence of the prevalence of other organisms, if the precaution had not been taken to inoculate animals with the tissues. Dr. Welch expressed the opinion that the diplococcus pneumoniae could not be said to be absent simply on the ground of negative results from cultures. This result must be controlled by the inoculation of susceptible animals. Moreover, even the failure to kill mice and rabbits by inoculation can not be considered conclusive evidence of the absence of the diplococcus pneumoniae, for this organism may be present in the human body in cases of croupous pneumonia in a form incapable of killing rabbits or even mice.

One of the most interesting and extraordinary properties of this organism is the variation in its virulence when tested upon animals. All who have experimented with cultures of the diplococcus pneumonia have called attention to its rapid loss of virulence when cultivated in artificial media. It is important to note that a progressive diminution of virulence may occur likewise in the lungs and other organs where the pneumococcus is present in cases of croupous pneumonia. In one case of croupous pneumonia dying in the stage of grey hepatization Dr. Welch found very numerous colonies of the diplococcus pneumoniae, mixed with a few colonies of the staphylococcus aureus in agar plate cultures from the consolidated lung. A rabbit inoculated with a piece of the lung died on the fifth day with extensive local reaction and large spleen. The pneumococci were abundant

near the seat of inoculation, and were found in considerable number, although fewer than usual, in the blood. Plate cultures (agar) made from the swollen spleen (after burning thoroughly the surface) of this patient showed in very large number, colonies of the pneumococcus. No other species of organism was present in these cultures from the spleen. The same pneumococcus was likewise observed in cover-glass preparations from the fresh spleen. The organism isolated from the spleen conformed in every particular as regards its morphology, its behavior in artificial culture media, its short vitality, its color-reactions to the pneumococcus found in the lung, the so called Fraenkel-Weichselbaum pneumococcus. Nevertheless it was devoid of its customary virulence, for a mouse and a rabbit inoculated subcutaneously with a bit of the spleen survived, and mice and rabbits inoculated with pure cultures of the organism likewise survived, the only reaction being a small abscess or purulent infiltration of the tissues at the point of inoculation. In this case, therefore, the diplococcus pneumoniae was present in large numbers in the hepatized lung in a weakened state as regards its virulence, and in the spleen in a condition incapable of killing rabbits and even mice. Every grade of virulence was observed in the pneumococci found in the different cases, from the degree just described as incapable of killing mice and rabbits up to the degree in which rabbits were killed in 36 to 48 hours by an acute septicæmia. In two cases the pneumococcus did not kill rabbits but it did kill mice, so that the latter animals are more susceptible and are to be preferred for inoculating tissues in cases of croupous pneumonia. In three cases rabbits survived the inoculation for more than five days, the longest duration being twelve days. Inoculation of rabbits with exudation present in the bronchi or in the trachea sometimes caused a rapidly fatal sputum-septicæmia even when the pneumococcus present in the hepatized lung showed weakened virulence. In general the impression was obtained that the most virulent forms of pneumococci are to be found in the sputum, in the freshly hepatized lung or at the margin of an advancing pneumonia, whereas the pneumococci present in advanced stages of hepatization and in the spleen are likely to be less virulent. This progressive diminution in virulence, as tested upon animals, of the pneumococcus in the consolidated lung and other organs in cases of croupous pneumonia is surely a significant circumstance. In no instance had Dr. Welch as yet been able to isolate the pneumococcus in a state capable of producing pneumonia in dogs, although not less than 5 cc. of a bouillon culture 24 hours old (in the thermostat at 37° C.) of the pneumococcus, obtained from a rabbit dead 40 hours after inoculation, had been injected directly

into the lung. Other observers, however, had obtained positive results by this method of inoculation. Others have found pneumococci producing more rapidly fatal septicaemia in rabbits than resulted from any of the cultures obtained from the cases examined by Dr. Welch.

In six of the ten cases the diplococcus pneumoniae was found in pure culture in the hepatized lung, as determined by microscopical examination and by plate or roll agar cultures; in two cases it was present in combination with the staphylococcus pyogenes aureus; in one case, in addition to the pus staphylococci, the streptococcus pyogenes was present in considerable number; and in one case with gangrenous foci there were present, besides the diplococcus pneumoniae and the pus staphylococci, a short oval bacillus and a long slender bacillus, not developing in plate cultures (aerobic cultures). In one of the cases in which the staphylococcus pyogenes aureus was present, several small abscesses had formed in the hepatized lung. In four cases, the diplococcus pneumoniae was found in pure culture in the spleen, which in all of these instances was swollen and soft; in one case it was isolated from the kidney, and in one from the heart's blood. In all instances (five) in which the pleuritic exudate accompanying croupous pneumonia was examined by culture methods, the diplococcus pneumoniae was found in this exudate. In three cases of empyema following acute croupous pneumonia (these do not belong to the ten cases now under consideration) the diplococcus pneumoniae was found; in two in pure culture, in one in combination with staphylococcus pyogenes aureus and albus. The pneumo-bacillus of Friedländer was not found in any case.

Dr. Welch described the morphology and behavior in culture media of the diplococcus pneumoniae. He had found that a convenient way of staining the capsules was to treat the cover-glass specimens, dried and treated in the usual way, with glacial acetic acid, and then, without washing off the acid, to drop on the cover-glass aniline-oil gentian-violet, which can be allowed to drain off and can be renewed two or three times. Attention was called to broad pale rods, corresponding to empty capsules, sometimes found in the fluid of empyema following pneumonia. These may be 10-30 mm. long and 2-3 mm. broad. They stain faintly, may be entirely empty, or may contain one or more deeply stained pneumococci. They correspond to the capsular substance around rows of pneumococci, the cocci having partly or wholly disappeared.

For staining sections, Weigert's fibrin stain had given most excellent results. A method which had yielded good and quick results was to dry thin frozen sections from the fresh organs upon the slide, and then to heat them for half an hour at a temperature of 110° to 115° C. These can then

be stained like cover-glass specimens. This method is often employed in the laboratory for staining fresh tissues in general for microorganisms.

The statements of Fraenkel and others were confirmed as to the behavior of the diplococcus pneumoniae in artificial culture media, its susceptibility to slight changes in the reaction and composition of the medium, its brief vitality, etc. As already mentioned, Guarnieri's gelatine-agar medium was found to be particularly suitable.

The history of our knowledge of this organism from its discovery by Sternberg in September, 1880, up to the present time, and the results and conclusions reached by the various investigators of its relation to croupous pneumonia, were briefly reviewed. The frequent presence of the pneumococcus in the saliva of healthy persons is, upon the whole, an assistance to us in the explanation of the various factors concerned in the causation of croupous pneumonia.

Illinois Army and Navy Medical Association.

A meeting to organize a society of medical men now living in Illinois who served in the Army or Navy during the war, was held at Springfield, June 26, 1890.

DR. JOHN H. RAUCH called the meeting to order at 10 o'clock, was made temporary Chairman, and Dr. Starkweather temporary Secretary. Prayer was offered by Chaplain the Rev. Francis Springer.

The object of formation of this Association was stated, and letters read from over one hundred medical men heartily approving of same, and promising to coöperate in making the movement a success.

A committee upon permanent organization was appointed, consisting of Drs. John H. Rauch, W. J. Chenoweth, Decatur; N. B. Cole, Bloomington; H. W. Kendall, Quincy; and R. M. Lackey, Chicago.

AFTERNOON SESSION.

The report upon organization was received. The object of the Association was defined to be the promotion of social and historical purposes, and the discussion of medical subjects connected with the late war. The officers consist of one President, five Vice-Presidents, a Treasurer, a Secretary, and one member from each Congressional District. These shall constitute a historical committee.

This committee, in connection with the officers, shall constitute the executive committee.

The membership fee was placed at two dollars per year, power being given to the executive committee to increase the amount if deemed necessary.

The meetings are to be held annually, at such

times and places as may be determined by the Association, or executive committee. In regard to *eligibility*, membership was extended to (1) all reputable physicians now living in Illinois, whether in practice or not, who served in the Army or Navy during the late war, regardless of the State from which they came. (2) All who were surgeons or acting assistant surgeons, and who were with Illinois troops, and are now non-residents of the State.

This report, and purposes of organization, were discussed by Drs. Barnes, Chenoweth, Andrews, Kendall, Johnson, Agnew, Hughes, Buck, Hall, French, Kelso, Copestake, Skeer, Wilcox, and others.

Drs. E. L. Phillips, John C. Copestake and H. A. Kelso, a committee on nominations, reported, and the following were elected, officers to serve for one year :

President, Dr. H. A. Johnson, Chicago; Vice-Presidents, Drs. H. E. Barnes, Bloomington; H. W. Kendall, Quincy; Ira Brown, Milford; A. B. Agnew, Samoth; E. Gurlick, Alton; Treasurer, Dr. W. J. Chenoweth, Decatur; Secretary, Dr. J. H. Rauch, Chicago.

The day was pleasantly spent, informal discussions and reminiscences fully occupying the time. A biographical sketch of the members is proposed. One hundred and twenty-seven members are already enrolled.

FOREIGN CORRESPONDENCE.

LETTER FROM PARIS.

(FROM OUR REGULAR CORRESPONDENT.)

Trephining of the Skull for Traumatic Cephalgia of Ten Months' Duration—Operation for the Removal of a Tumor of the Brain—Operation on the Cranium of a Microcephalous Child—Researches on the Dynamogenic Injections with the Testicular Fluid of Animals—Treatment of Purulent Pleurisy.

At a recent meeting of the Surgical Society of Paris, Dr. Terrillon read the notes of a case of trephining the skull for traumatic cephalgia of ten months' duration. The patient was an officer in the Hussars, who had received a violent blow upon his helmet. This caused a severe contusion, but there was no wound. A short time afterwards giddiness and pains in the head supervened. At the end of six months the pains became continuous, with exacerbations, especially localized at the upper part of the left side of the frontal bone. The patient could not sleep at night, and he began rapidly to lose flesh. Various drugs were tried, but without avail. Incisions into the integument over the painful spot were practiced, but also without result. Finally trephining was decided upon and performed by

the author. The bone was extremely thickened, probably from osteitis. The dura mater was healthy, and an incision into it showed that there was no lesion underneath. The recovery was rapid, and the pains disappeared, and up to the time of the publication of the notes there had been no recurrence of the trouble.

I may here recall a somewhat similar operation that was performed at the beginning of the year by Dr. Péan, at the Hôpital Saint Louis, though not for the same complaint. It was for the removal of a tumor of the brain. The patient had suffered from attacks of unilateral epilepsy for seven or eight years. He had been invalided from the military service for this affection. The epileptic attacks became more frequent, coma occurred, and there was visual hemiplegia. Dr. Gélinau, the private physician of the patient, was able to determine precisely the place occupied by the tumor. Taking his measurements from the external angle of the tragus, and from one tragus to the other tragus, in order to find the median line, about $4\frac{1}{2}$ centimeters behind in the triangle formed by the junction of these lines on the left side of the cranium in the neighborhood of the sinus, he determined exactly the spot in which the tumor should be found, and from the character of the epilepsy he indicated not only the convolution but the depth at which the tumor was probably situated, and its probable size. He concluded that the tumor was situated in the convolution of Rolando. Before taking any further steps, Dr. Ballet, an Agrégé of the Faculty of Paris, and Hospital Physician, was called into consultation. Dr. Ballet had marked in ink the spot for operating, when Dr. Péan removed a circle of the skull of about 3 centimetres; the dura mater was healthy. Following the advice of Dr. Ballet he incised it crucially, and found below the pia mater covered with pus, and a distended vein occupying half the wound. The pia mater, which was infiltrated and thickened, was divided and the brain incised. Dr. Péan then arrived at the tumor, which he removed by "morcellement," that is, by piecemeal, cutting into the sac and removing it piece by piece towards the periphery. The tumor being friable, he used a curette and took away even the capsule, which was formed by the brain. This tumor was of the size of a small apple. A small drainage-tube was introduced, the dura mater was sutured with catgut, and the soft parts with a hair suture, and antiseptic dressings were applied. Union by first intention was obtained without a drop of pus. During the night preceding the operation there had been thirty-seven epileptic attacks; on the night following it there were only five, and five or six days afterwards there were none. Coma and delirium disappeared towards the tenth day, the complete paralysis of the two limbs disappeared on the fifteenth day. The

limbs gradually recovered their movements, and at the end of a month the patient completely recovered consciousness, and the limbs recovered all their power of movement.

Another very interesting operation on the cranium was lately performed by Prof. Lannelongue on a microcephalous child 4 years of age. The patient, a little girl, appeared to be no more than two years of age. Her skull was only about one-third the normal size. She could not walk or stand on her legs without support. She was never seen to laugh, and nothing seemed to interest her. Dr. Lannelongue attributed the condition of the child to cerebral lesions as well as the narrowness of the cavity of the skull, and he thought that the rational indication in this case was to open the skull and thus relieve the brain from pressure, as has already been done in other abnormal cases with very encouraging results. Dr. Lannelongue therefore decided on performing craniotomy in this case. He began by making a long and narrow incision along the median line of the skull, corresponding to the sagittal suture, and extending from the frontal to the occipital suture. He then removed from the left side of the skull, which was flatter than the right side, a piece of bone measuring nine centimetres long by six millimetres wide. The dura mater was left intact and the superficial wound was reunited without drainage. Union took place by first intention. The operation was performed on May 9, and on June 15 a great change was noticed, for the child was quiet, laughed, and seemed to understand what was said to her. She could stand up unaided, and ceased crying; the trembling of the limbs also ceased. The cicatrization of the wound is complete, and the child's intellect seems to develop gradually. A short time after the above operation a similar one was performed by Dr. Lannelongue on another child, but it is as yet too early to judge of the results.

At a recent meeting of the Société de Biologie, Professor Brown-Séguard communicated a note confirming the results of his preceding researches on the dynamogenic effects of the hypodermic injections with the testicular fluid of animals, and has since discovered that this fluid has not only a rejuvenating effect, but that it possesses other therapeutical virtues. He now employs it in the form of enemata by administering from 40 to 50 grams of water in which is rubbed up two testicles of a guinea pig, from which he has obtained the best results. In support of his affirmations, the author cited a certain number of cases of cures or of ameliorations he had obtained by this treatment in the most diverse maladies, such as intermittent fevers, ataxy, hemiplegia of organic origin, insomnia, cardiac intermittence, dyspepsia, anæmia, and even leprosy. But the most remarkable case was the cure of a metrorrhagia in a woman, in whom was injected hypodermi-

cally some of the semen of her husband, who was himself a medical man. From further study of the subject, Dr. Brown-Séguard concludes that the testicular fluid has, on the nervous system, a powerful tonic effect.

It has been objected that these hypodermic injections acted only by suggestion. To which Dr. Brown-Séguard responded that he is far from denying the influence of suggestion in the affections dependent on the nervous system, and, as he had already said, that it is on the cerebro-spinal axis that the testicular fluid acts. It is not, therefore, by a simple theoretical refutation that one can combat the theory of suggestion; the hypothesis can be refuted only by experiments; these experiments have been performed, and the following observations were made: It was first remarked that, in a certain number of cases several injections should be practiced in order to obtain the desired result, as if a cumulative effect should be obtained. This first proof proved insufficient. In a patient injections of pure water, slightly colored, were practiced; in announcing to him marvellous results, no effect whatever was obtained. In the same patient, injections of testicular fluid, practiced some days later without apprising him of the change of the fluid, produced salutary effects. This proof is of great value; but the most striking demonstration of the inanity of the hypothesis of suggestion has been furnished by Dr. Mairet, of Montpellier, Dr. Mairet had injected the testicular fluid into lunatics, who, it is known, are essentially unapt for suggestion, and this was done with complete success.

At a recent meeting of the Société des Hôpitaux Dr. Bucquoy communicated some observations of the highest interest on the treatment of purulent pleurisy. They clearly show that "lavage" of the pleura after thoracotomy, and less so several and repeated lavages, have not the importance which is accorded to them. He summarized his remarks by the following precepts: To operate early, without which there will be produced thick fibrous shells which cicatrize with difficulty. To practice the operation according to the rules of antiseptic, and to apply antiseptic dressings; to introduce a large drain, permitting the easy escape of the discharges, and frequently to wash the drain to prevent its being blocked up. The cure is often very rapid, the pus becomes serous, and diminished in quantity. Eventually the tube drops out and cannot be put back into its place, and in three days after the wound is cicatrized.

A. B.

AMERICAN DERMATOLOGICAL ASSOCIATION.—The fourteenth annual meeting of this Association will be held at Richfield Springs, New York, on September 2d, 3d and 4th.

DOMESTIC CORRESPONDENCE.

The New York State Examination Act.

To the Editor:—The publication, in THE JOURNAL, of the Act establishing State medical examinations in New York, may give pertinence to comments on its principal provisions, some of which concern only the profession in the State wherein they are to be operative, while others are of interest—either as examples or warnings—to all who desire the advancement of medical education, and who seek such advancement through legislation under our peculiarly liberal system of representative government, in which every voting citizen—and, *a fortiori*, every legislator—has an inalienable right to form a conclusive opinion on all subjects, whether within or beyond the range of his information and experience.

Under such a system, and with inevitable regard to political expediency, the erection of separate examining boards from the homœopathic and eclectic sects was, perhaps, a "*conditio sine qua non*" for the framers of the bill, who have endeavored to counteract the mistake of recognizing "schools" as founded on the single and subordinate question of drug administration, by ordaining that the same questions on other subjects shall be propounded to all candidates, from whatever "school."

A greater difficulty, however, arose in the selection of an examining board to represent the non-sectarian profession at large, and this difficulty can hardly be regarded by the readers of THE JOURNAL as satisfactorily settled by the enactment that this board shall consist "exclusively" of members of the State Medical Society. This Society, as everyone conversant with its transactions will gladly admit, contains many men of distinguished professional attainments; but since its withdrawal from affiliation with the American Medical Association by the adoption of a "new code," it can no longer, with any show of reason, claim to speak officially for the profession from which it has voluntarily separated itself, and of which, even in its own State, the majority is opposed to its tenets. According to its report for 1889, its members numbered less than 200, and none of these, in capacity of such membership alone, would be recognized by the National Association. Yet from this small circle are to be "exclusively" appointed the arbiters of questions which concern the whole profession throughout the United States.

Not only the appointment of the three "exclusive" boards of State examiners, but also the choice of the questions to be put to the candidates for a license, are functions allotted to the Board of Regents of the University of the State of New York, consisting of nineteen persons, appointed by the Legislature, who receive no salary for

their service, and who are legally required to attend but one meeting per annum. Among them are several gentlemen justly eminent in journalism, law, politics, and other vocations not connected with biological sciences; but, as far as I am informed, the only medical member of the board is a homœopathic practitioner. None of them, probably, would concede the competence of a board of physicians to control the editorial work of a newspaper, to supervise the practice of law, or to direct the management of a railway; is it quite unpardonable on our part, while admitting the excellence of their accomplishments in their respective callings, to doubt their competence to pass a final judgment upon the qualifications of physicians and surgeons? For, be it noted, after either of the medical examining boards (or "one or more members thereof") shall have reported its (or his) satisfaction with the answers given by a candidate, these answers are to be transmitted to the Regents, who, if the said candidate, "in their judgment, be duly qualified therefor," shall issue to him their license to practice medicine and surgery. Let us suppose—of course, only for the sake of argument—that a single member of, say, the eclectic examining board should be deputed to scan all the examination papers of a very incompetent candidate, and through his own ignorance or forgetfulness of physiology, surgery, pathology, and a few other subjects, or else through a laudable desire to increase the numerical influence of his peculiar "school," he should mark these papers up to ninety-nine, when their desert was near zero. Would the "judgment" of the Regents in such a case be valid as regards the mechanism of thermogenesis, the localization of cerebral or spinal lesions, the diagnosis of mediastinal tumors from aortic aneurism, the technique of ligation of the femoral artery, the histological difference between sarcomata and carcinomata, the management of impacted labor, or even the discrimination between eczema and small-pox?

The worst feature of the Act—derived, perhaps, from the practice of the Civil Service Commission in other fields—is the provision that all the examinations "shall be conducted in writing;" the candidates not being in any way brought into personal relation with the nominal examining boards or with the Regents. The utter insufficiency of such a method has been too often shown to need further discussion. A first-rate examination paper in anatomy may be (and has been) written by a "book-crammer" who has never spent an hour in the dissecting-room, and who is practically worse than ignorant of the subject; and so of other branches of medical education. What we want to elicit by examination is, not the unintelligent retentiveness of a man's memory, but his ability to apply the knowledge which he has understandingly gained to varying circum-

stances; and in medicine, just as tuition is becoming more and more clinical and experimental, so examinations must necessarily follow the same course; and not only the teacher, but the examiner too, must be a master of his subject, and an analyst of character as well. The late Dr. J. C. Dalton, than whom there were few keener examiners, once said to me that, had he no other alternative, he would rather talk to a candidate for twenty minutes, without asking him a single technical question, than attempt to judge his qualifications by reading a ream of written answers, and I imagine that almost all experienced teachers will agree with him.

A singularly ungrammatical penultimate section, apparently designed to conserve the superfluous contingent emoluments of county clerks, declares that, after a graduate shall have obtained the Regents' license (which is a matter of official State registration) empowering him "to practice medicine and surgery in the State of New York," he shall not be punished "if called to attend isolated cases in another county but not residing or habitually practicing therein." Presuming that the residence and habitual practice are meant to apply to the physician, and not to the "isolated cases," it would seem that, instead of a State qualification, we shall have only a county qualification, after all, and that the *ridiculus mus* produced by the preposterous parturition of the Act will vanish through a very small hole, leaving the really important affairs in a worse condition than before the law received gubernatorial approval despite the protest of a large part of the regular profession.

ALFRED L. CARROLL, M.D.

30 West Fifty-ninth St., New York.

Letter from the Catskills.

The Secretary of the American Medical Association Climbs the Catskills, Stands on Inspiration Point, Gazes into the Depths of the Kaaterskill Falls, and gives to our readers Some thoughts on Mountain Scenery and Health Combined.

To the Editor:—I dare to offer to your readers from the lofty Catskills, and at about the highest point in the range, some thoughts on mountain scenery and health combined in place of a didactic or clinical lecture. The rare atmosphere united to the grand scenery gives one a feeling of exhilaration which lifts him above all thoughts of disease, or its concomitant mediation. Even hygiene may almost be ignored, as health here really runs itself. We are so often treated to the phrase "the Switzerland of America" that the term seems to mean nothing, but for grandeur of mountain scenery, by which humanity lapses into nothingness, this particular portion of New York surpasses everything on this continent. Few of

the hundreds of thousands of people living within a radius of 250 or 300 miles in the teeming cities of New York, Brooklyn and Philadelphia are aware of their proximity to such wonders of nature, and that within half a day's journey they could gratify their sight with a view eclipsing all that we are taught to regard as accessible only after a long and fatiguing sea voyage or railroad trip.

A walk of half a mile, from the hotel, which affords from its own porch a remarkable bird's-eye view of the valley of the Hudson, and the river of that name about eight miles away, winding its way through hundreds of thrifty towns and villages, brings us to Inspiration Point, which enables the spectator to stand on a projecting point of rock and scan the entire valley laid out like a map, shaded in varying hues of green. This point is about 2,700 feet above the level of the sea, and is reached by a circuitous road climbing the sides of the mountain from the station nearly two miles below. This station, already an elevated spot, is connected with the world below by means of a narrow gauge road ascending by a quite sharp grade. Another beautiful spot is the Kaaterskill Falls, where a pretty mountain stream after a series of jumps from one rocky ledge to others finally disappears in a basin many feet below to lose itself in a ravine, almost entirely hidden from view by a heavy growth of mountain timber.

From several points, the sun may be watched as he suddenly bursts upon the world on the dawn of a new day, or bids it farewell as he sinks to rest. Although this is the tenth year that this mountain has been opened to the world who seek for health, for scenery and the like, yet the marvellous scenes of beauty and grandeur have scarcely begun their development, and new paths, etc., are constantly being opened by the explorers. Before bidding adieu to my readers, I must urge them to come here, if but for a few days, and I feel sure they will say that I have told them little of what they will be sure to enjoy. Nor is the health and appetite built up without something substantial to aid in its maintenance. Ten thousand acres of land which surround the hotel belong to it, not only for pleasure but for the procuring of meats of all kinds, milk, butter and the other adjuncts of good living, thus assuring the mountain climbers the luxury of the best meals to assuage the pangs of appetite which are so sure to attack them at stated intervals in the midst of their explorations.

When we add to this the admirable manner in which they are served, affording so much comfort which often is lacking in the hotels of the lower world, we feel that we relieve any who may be tempted to come up here of that fear which so often attacks the hungry traveler when seated at the average hotel table. Later, opportunity may

offer to give a brief glance at some of the hygienic points to be obtained by a pilgrimage to this Mecca by those who are seeking the often phantom goddess Hygiea.

W. B. ATKINSON.

Hotel Kaaterskill, N. Y., Aug. 9, 1890.

The Heart on the Right Side—No Right Lung.

To the Editor:—Being called to one of our hotels about ten days ago to see a patient, as I was preparing to leave, a gentleman in the office asked me to feel his heart and see if I had ever seen anything like it. I found the heart to beat firmly and with unusual force against the right chest wall. I could detect no apex beat, but it seemed as if the whole side of the heart struck directly against the wall. I could detect no beat or sound on the left side. I saw clearly that he either had a displaced heart or that it was a congenital malformation. It being after tea, and having other engagements, I made no further examination, but asked him to call at my office at some convenient time to him, that I might make a thorough examination of his case.

On the morning of the 12th, at about 5:40 A.M., some five or six days after I had first seen him, I was summoned to the hotel hurriedly to see him. On my arrival found that he had died about fifteen minutes before with a pulmonary hæmorrhage. I took his name and occupation and had him carried to an undertaker's establishment where the costal cartilages were cut and the anterior chest wall turned back, and I now give the results of the autopsy:

E. F. W., æt. about 36, a commercial traveller, slender and seemed to have a delicate constitution, died about 5:45 A.M., July 12. Post-mortem showed the heart on right side of the chest. No right lung; left lung well developed but studded with tubercular deposits. The left side of the heart and the auricle natural. The right side and auricle unusually large, giving the heart a one-sided appearance. The enlarged right side evidently striking against the right chest wall at each beat. The heart, with its pericardium, being the only thing on the right side except where a portion of left lung protruded over to right of sternum. There was no part of the right lung, nor had there ever been any. It was a case of congenital malformation.

I was anxious that these specimens be preserved, but could not have it done. I report this thinking it of interest to the profession.

Drs. Cason, Rochelle, Denpre, Henderson, and perhaps others of this city examined the case very carefully also.

J. A. CROOK, M.D.

Jackson, Tenn., July 15, 1890.

ASSOCIATION NEWS.

Report of the Treasurer of the Rush Monument Fund to the Forty-first Annual Meeting of the American Medical Association.

Gentlemen:—I have the honor to report the condition of the "Rush Monument Fund" as follows:

Cash received from Dr. J. M. Toner, late

Treasurer, July 13, 1889 \$1,195.69

Contributed since the Newport meeting:

Arnold, W. G., Pawtucket, R. I.	1.00
Burgdorf, Augustus, Washington, D. C. . .	5.00
Boston, C. H., New York City	1.00
Best, Dr. J. E., Arlington Heights, Ill. . .	1.00
Barker, R. W., Washington, D. C.	5.00
Bulkley, Dr. J. W., Washington, D. C. . .	5.00
Conant, H., Pawtucket, R. I.	5.00
Carter, Dr. C. C., Pawtucket, R. I.	5.00
Davis, Dr. Rob't T., Fall River, Mass. . .	1.00
Dearing, Geo. T., Washington, D. C. . . .	5.00
Fiske, Dr. S. F., Pawtucket, R. I.	2.00
Gaylord, Dr. W. G., Pawtucket, R. I. . . .	10.00
Goff, Dr. D. L., Pawtucket, R. I.	5.00
Gardner, Dr. Geo. W., Pawtucket, R. I. . .	1.00
Gilman, Dr. Jno. H., Pawtucket, R. I. . . .	1.00
Godding, Dr. W. W., Washington, D. C. .	5.00
Haskell, Dr. W. H., Pawtucket, R. I. . . .	5.00
Hill, Dr. L. G., Dover, N. H.	1.00
Jenks, Dr. S. A., Pawtucket, R. I.	5.00
Jenks, Dr. James M., Pawtucket, R. I. . . .	10.00
Johnson, Dr. H. L. E., Washington, D. C. .	5.00
Kelly, Jno. R., Washington, D. C.	5.00
Kalusowski, Washington, D. C.	2.00
Littlefield, Lt. Goy. O. G., Pawtucket, R. I.	5.00
Lee, J. Wm., Washington, D. C.	10.00
Lovejoy, Dr. J. W. H., Washington, D. C. .	4.00
Lothrop, A. M., Washington, D. C.	5.00
Metcalf, Hon. H. B., Pawtucket, R. I. . . .	5.00
McClelland, W. F. (Treas.) Denver, Col. .	50.00
Mason, Dr. R. D., Pawtucket, R. I.	2.00
Morrison, E., Washington, D. C.	5.00
Moore, Wm. G., Washington, D. C.	5.00
Parks, Dr. W. A., Pawtucket, R. I.	1.00
Patterson, Dr. A. C., Washington, D. C. .	5.00
Patterson, Dr. D. C., Washington, D. C. .	5.00
Patterson, Dr. T. H., Chicago, Ill.	1.00
Palmer, Dr. Wm. G., Washington, D. C. .	5.00
Reyburn, Dr. Robt., Washington, D. C. . .	5.00
Schaeffer, Dr. E. M., Washington, D. C. .	1.00
Sheldon, Dr. H. H., Pawtucket, R. I. . . .	1.00
Stearns, Hon. H. A., Pawtucket, R. I. . . .	2.00
Sell, Dr. Ed. H. M., Allentown, Pa.	5.00
Stack, Dr. Maurice J., Washington, D. C. .	5.00
Speare, W. R., Washington, D. C.	5.00
Stanton, Dr. J. O., Washington, D. C. . .	5.00
Sothoron, Dr. J. T., Washington, D. C. . .	5.00
Snow, Dr. A. P., Winthrop, Me.	2.00
Toner, Dr. J. M., Washington, D. C. . . .	4.00
Townshend, Dr. Smith, Washington, D. C. .	5.00
White, J. Harrison, Chicago, Ill.	10.00
Witmer, Dr. A. H., Washington, D. C. . .	5.00
Walter, Jr., Dr. J., Washington, D. C. . .	5.00

\$1,459.69

On a careful examination of this report it will be seen that of the \$264 contributed since the Newport meeting, \$66 were from Pawtucket, R. I., secured through the personal solicitations

of Dr. J. O. Whitney of that place, and \$132 in Washington, in response to personal appeal. I think this may be regarded as an indication of what could be done by similar work in other towns and cities throughout the country. A little effort on the part of the profession would secure the completion of the monument in 1892. Shall we not make it?

Since the above, the following sums were received at Nashville:

Armstrong, C., Carrolton, Ill.	\$1.00
Berkemeyer, L. C., Allentown, Pa.	1.00
Bishop, W. T., Harrisburg, Penn.	5.00
Baily, Wm., Louisville, Ky.	1.00
Brower, D. R., Chicago, Ill.	1.00
Bucher, J. Riley, Lebanon, Penn.	2.00
Bowen, A. B., Maquoketa, Iowa	2.00
Christmas, J. D., Allentown, Penn.	1.00
Cauley, Morris J., Allentown, Penn.	1.00
Clemens, H. S., Allentown, Penn.	1.00
Colvin, Darwin, Clyde, Ohio	1.00
Davis, J. W., Smyrna, Tenn.	1.00
Dibrell, A., Van Buren, Ark.	1.00
Erdman, J. D., Allentown, Penn.	1.00
Erdman, W. B., Allentown, Penn.	1.00
Evarts, O., College Hill, Ohio	5.00
Grim, H. A., Allentown, Penn.	1.00
Heistand, Daniel, Allentown, Penn.	1.00
Herbst, H. H., Allentown, Penn.	1.00
Hartzel, Wm. H., Allentown, Penn.	1.00
Hassler, W. A., Allentown, Penn.	1.00
Herdmon, W. H., Ann Arbor, Mich.	1.00
Kistler, A. L., Allentown, Penn.	1.00
Keller, James A., Hot Springs, Ark.	10.00
Kauffman, J. S., Blue Island, Ill.	2.00
Lear, John, Allentown, Penn.	1.00
Loving, Starling, Columbus, Ohio	1.00
Logan, S., New Orleans, La.	5.00
Menoir, B. B., Lenoir P. O., Tenn.	1.00
Martin, E. G., Allentown, Penn.	1.00
Martin, Chas. D., Allentown, Penn.	1.00
Marten, Alfred G., Allentown, Penn.	1.00
Martin, Thos. J., Allentown, Penn.	1.00
Miller, A. D., Allentown, Penn.	1.00
McComas, J. D., Oakland, Md.	5.00
Otto, C. J., Allentown, Penn.	1.00
Richard, P. L., Allentown, Penn.	1.00
Romig, Geo. M., Allentown, Penn.	1.00
Riegel, H. H., Allentown, Penn.	1.00
Stem, P. E., Allentown, Penn.	1.00
Stilz, P. H., Allentown, Penn.	1.00
Slough, F. J., Allentown, Penn.	1.00
Schaeffer, C. D., Allentown, Penn.	1.00
Strong, C. et al., Portland, Oregon	14.00
Schenck, W. L., Osage, Kan.	1.50
Sloan, A. B., Kansas City, Mo.	1.00
Starkey, Horace, M., Chicago, Ill.	1.00
Shelden, W. K., Williamsport, Tenn.	2.00
Twitmyer, J. H., Sharpsville, Penn.	1.00
Wiggins, T. H., Litchfield, Conn.	5.00
Yeager, Norton R., Allentown, Penn.	1.00

\$97.50

Amount brought forward \$1,459.69

\$1,557.19

Disbursements as per vouchers, \$17.50

Balance cash in Bank \$1,539.69

\$1,557.19

D. C. PATTERSON,

Treasurer.

NECROLOGY.

Death of Prof. J. Adams Allen, A.M., M.D., LL.D., Dean of Rush Medical College.

Dr. J. Adams Allen, the well known physician, died at his residence, No 2001 Michigan Avenue, Chicago, after a lingering illness of nearly three years. Few men were better known in the profession, and his death, though not unexpected, will nevertheless bring a fresh sorrow to many hearts.

Jonathan Adams Allen was born in Middlebury, Vt., January 16, 1825. His maternal ancestors came from England in the Mayflower in 1620, and his paternal ancestors arrived in this country from Wales in 1634, having been driven to that country from England by the exigencies of civil war at a remote date. His ancestors on both sides were, therefore, English. Their descendant, Dr. Allen, was prepared for college at the early age of 9 years, the result of which procedure was to impair his health and superinduce symptoms of a speedy decline. He was then exiled from study temporarily, and went into the country, where special pains were taken to counteract the ill effects of premature mental application. In winter he was allowed to pursue light study, and this method being followed until he was 16, he became possessed of a sturdy physique that has stood him in good stead during his active life, and the performance of the exacting duties of his profession. In 1845 he graduated with the degree of B.A., and during December, 1846, with the degree of M.D.

In January, 1847, Dr. Allen married Miss Mary Marsh, of Kalamazoo, Mich., and the succeeding day visited his first patient. Since this first patient the recital of Dr. Allen's life would be a narration of the achievement of the highest honors in his profession—of a life of unwearied application, of indomitable perseverance, and of persistent instruction. He has occupied numerous chairs in Rush Medical College, accepting the chair of Professor of Theory and Practice of Medicine in 1859, when he came to Chicago, and holding it up to 1890, or when his sickness compelled him to resign.

As a result of his extended studies and varied investigations, the students of Rush Medical College esteem him the "versatile uncle," as he has been familiarly called by the students and alumni of the college for many years, and whose didactic discourse always remained in their memory, such was his happy faculty of imparting instruction. Every study that Dr. Allen has undertaken he has beautified by his eloquence and literary talent; in every phase of existence wherein he has lived, he has been honored and esteemed as few men are. President of Rush Medical College, Grand Master of the Masons of Michigan,

In 1888, Werth, of Kiel, read a paper before the German Gynecological Society, at Halle, in which he stated, that in three hundred operations on the female genital tract, he had in six instances observed psychical disturbances due to the operation. In two cases the operation was total extirpation of the uterus; in two, removal of the ovaries; and in two ovariectomy. One patient was violently excited before the operation. In five cases the mental disturbance took the form of melancholia, and one of mania.

In *American Jour. Obstetrics*, Jan., 1889, Fillebrown, of Hamburg, reports four cases observed by Prochownick. Case 1. Hysterectomy for fibromata. Patient single. Aged 45. Recovery interrupted, in the third week, by a small exudation in left side. Operation Feb. 19. Discharged well March 19. In July of the same year, melancholia. Her condition improved under treatment, but occasionally shows signs of mental distress. Shows aversion to men generally, and to physicians in particular. Case 2. Prolapsus uteri, and cystocele, with torn perineum. Operation June 16. Insanity at the end of September. Improvement in mental condition, but finally died of peritoneal cancer. Case 3. Catarrhal colitis and two abortions. Curetting of the uterus and development of ovarian cyst. Operation Sept. 19, 1889. Mental excitement in following December, increasing to mania, in a month. Slowly recovered. Had fear of cancer, and hysteria prior to operation. The fourth case. Age —. Had eight abortions (?). Had a fibroma, which necessitated laparotomy for castration, March, 1887. Besides the ovaries, two small fibromata the size of large apples, and the tubes, with hæmato and pyosalpinx were removed. The first signs of psychical derangement occurred thirteen months after operation. The patient died, and at the autopsy, a cerebral tumor was discovered. Hæmorrhage was the immediate cause of death. Fillebrown well says that this last case of insanity was not due to the operation. He claims that if due to the operation, the psychosis should develop in four months or less. The age of two of these cases should relieve them of any suspicion of having been made insane by the surgical operations, as they were past the age of menstrual activity.

Fillebrown also reports three cases of interest, in that they developed insanity prior to operation. One rupture of ovarian cyst, just before operation was to have been performed. One week's illness. Recovery. Melancholia in two months. Recovery in three months. Another for ruptured extra-uterine pregnancy. Patient ill seven months. Melancholia in four months. Recovery. A third case, pyosalpinx, rupture, hæmorrhage, peritonitis, melancholia. History of heredity.

In the *British Medical Journal*, June 8, 1889, Dr. Thomas Keith, formerly of Edinburgh, but

now of London, makes the following remarkable observation: "Even the fact that in my cases of hysterectomy, the removal of the uterus and ovaries was sooner or later followed by insanity, in 10 per cent. of the whole number, is enough for me to condemn any operation that removes these organs." This statement occurs in the famous declaration made by Dr. Keith (in the journal above quoted), that he has forsworn such formidable operations as hysterectomy, and ovariectomy, for fibroids. Coming, as this does, from so eminent an operator, and in every way so very popular, and highly esteemed gentleman, demands careful consideration, and does not admit of mere denial.

It is not surprising that our anti-surgical friends should take advantage of this statement, and we accordingly have seen it used already in opposition to radical treatment. The inquiry made in regard to this view of the case, has led to very careful search of the literature of the subject, and to my gratification, it is almost impossible to find upon record a well-authenticated case of insanity due to these operations. In point of fact, an operation to produce insanity, which should be without question owing to the operation alone, would of necessity be performed upon a healthy woman, which no operator would dare to undertake. If this view be not correct, the solution of the difficulty lies in the neurosis being merely a coincidence or accidental result.

The investigation has led the writer from a position of some skepticism, to one of positive conviction, that the position of Dr. Keith is untenable.

For a few moments we will see what representative surgeons and others have to say in view of Dr. Keith's statement. First, let us see what he says himself: "Of the six cases of insanity I had after hysterectomy, in two, the attacks were acute, during convalescence. Both died. One had been insane before—an acute attack—none of the others. Of the other four cases, two had attacks of acute mania, within a year after operation. One recovered, the other was still insane when I last heard of her; that was several years after operation. In the other two, the — was chronic mania. . . . I had no cases of insanity after simple double removal of the ovaries; only after removal of both ovaries and the uterus. It is impossible for me not to connect at least three of the cases with the operation.

Dr. Bantock says: "I regard insanity following abdominal operations, rather as a coincidence than a consequence. I have not seen any cases, save those in which insanity was previously shown. One was a case who had been in an asylum, and the other was one of religious enthusiasm, rather than mania. The former, when last heard from, was as well as when she left the

Asylum. The latter is now quite well. Another case of supra-vaginal hysterectomy had hysterical mania for a few days, and a fourth was a bad case of ovariectomy, done during an attack of puerperal mania; the case doing well. There has been nothing in the experience of my colleagues at the Samaritan Hospital, to warrant any support to the statement in question.

Dr. A. Martin says: "I have been truly astonished to read Dr. Keith's statement. Among my own cases, out of whom over 1,000 have survived laparotomy, not one patient has been insane, where there had not been very marked symptoms of mental trouble before. Grave hysteria followed sometimes other operations, but here also not one quite healthy person has fallen ill in this way. The only exception I have seen is in rectal operations, removal of piles, and similar operations (which, indeed, I perform but quite exceptionally.) I saw acute mania, but also here there were prior symptoms, undoubtedly." This letter disposes of the statement made in Dr. Ill's paper (quoted by Thomas) that so many cases occurred in Dr. Martin's hospital.

Dr. Robert Battey says: "I rarely remove the uterus, and have not any case of insanity following operation upon any patient who was not previously insane; *per contra*, I have had a number of cases of reflex insanity which have been cured by operative interference."

Dr. T. A. Emmet says: "I have rarely done hysterectomy, and seldom remove the ovaries for any other condition than the one calling for ovariectomy proper. I have never seen, in my own practice, a case of insanity following any of these operations; nor do I know of an instance in the practice of any one else, after hysterectomy or ovariectomy. But I have known of several instances of acute mania, and a number of cases of melancholia, which have followed the operation for removing the tubes, and ovaries. I have seldom been called in consultation to see these cases, but have known from the friends of the regret [?] where I have refused to operate, and they have gone to others to have it done. Unfortunately, I am unable to furnish any statistics, and I wish our knowledge was more accurate; but I cannot divest myself of the belief, that a disturbance of the mind, in some form, has been a far more frequent occurrence after removal of the uterus and ovaries, than is generally supposed."

In the view announced by Drs. Bantock, Battey and others, that the cases of insanity following gynecological operations really preceded them, very many of our active surgeons concur; but to reproduce their opinion here would greatly lengthen this paper. In fact, there is no dissent whatever. But some may say, why do you not ask the alienists; for we have heard that many

cases of insanity are found in our asylums, as a result of gynecological work? What do we find?

Dr. Alice Bennet, of the State Asylum, Norristown, Pa., says: "I have had three cases of insanity following removal of the ovaries. I am not willing to say that the operations were the cause." These cases are cited, but develop nothing unusual. These cases came under Miss Bennet's care after operation. It will be seen that Dr. Keith only claims three cases, as unquestionably due to the operation. Dr. Keith has had sixty-four cases of hysterectomy. His six cases of psychosis show but one with previous history of insanity. It is worthy of observation that he attaches no importance to the simple removal of the ovaries for fibroids, as a factor in the production of insanity, but emphasizes the point as important "only after the removal of both organs."

Dr. G. Alder Blumer, Supt. of the N. Y. State Asylum says: "Replying to your recent inquiry in reference to gynecological operations in their relation to insanity, I have to state, that, while we have had a few cases in which such operations were assigned as the exciting cause, the patients have generally been unstable normally, and predisposed to insanity by heredity."

In conclusion, it appears but fair to claim that there is but slight evidence of insanity resulting from gynecological work. If all the factors which enter into the causation of such psychical disturbance are considered, it is quite probable that but slight evidence will be found to support the theory of cause and effect, or that insanity is directly produced by the operation. Thus we know that in any surgery we have psychical disturbances from anaesthesia, shock or use of toxic substance, such as iodoform, etc.

Again the overwhelming statistical information at hand, showing how many women are insane owing to disease of the generative organs, alone; and, also, the number cured by the proper treatment of their diseases, should forever silence any captious criticism of this surgery.

Few facts in medicine are so well established as, that scores of women are being rescued from insanity and some of the protean forms of hysteria, by the gynecologist. The fear that insanity may result from the operation should never deter the surgeon from its performance; for if in doubt about it, there must need be positive reason to suspect a mental trouble, which, according to the almost universal experience of the profession, is caused by the disease in question, and is not to be prevented by the delay of the treatment.

At the Medical Congress of Cuba Dr. Lyada read a paper on yellow fever, which disease he affirms not to have existed in Cuba before the African immigration.

A PLEA FOR EARLY LAPAROTOMY IN INTESTINAL OBSTRUCTION.

Read in the Section of Surgery at the Forty-first Annual Meeting of the American Medical Association, held at Nashville, Tenn., May, 1890.

BY J. G. CARPENTER, M.D.,
OF STANFORD, KY.

Bantock, of England, and Joseph Price, of Philadelphia, have written most beautifully, eloquently and forcibly upon this subject, "A Plea for Early Ovariectomy," and have conclusively demonstrated that the best and most favorable time for ovariectomy, is when the diagnosis is made, and before complications and structural lesions have taken place in adjacent and remote organs, and when the patient is in the best possible condition for operation. How true and applicable these remarks are to the subject of intestinal obstruction, is only correctly appreciated by the abdominal surgeon.

Surgery has made giant strides, and in no special field has there been more advance than in intestinal surgery. In every medical society there should be read a paper written on my subject, viz.: "A Plea for Early Laparotomy in Intestinal Obstruction." The mortality from delay, incorrect diagnosis, timidity, ignorance and prejudice in the past, has been very high and fearful. To-day, we have a reliable, safe, speedy and accurate method of diagnosis of intestinal obstruction, viz.: Senn's hydrogen gas inflation of the intestines and the location of the obstruction in the large or small intestine. All praise is due Senn for his inventive genius, originality, and experimental research in intestinal surgery. If intestinal obstruction is suspicioned, the permeability or non-permeability of the intestinal canal and the diagnosis of obstruction can be made in less than an hour, the hydrogen gas can be generated in ten minutes; in ten to twenty minutes, more or less, the bowels can be inflated, the gas escape from the mouth through the tube inserted in the stomach and ignited, which gives a blue flame, if no obstruction exists; otherwise, the indication, is to operate at once, and before inflammatory and structural lesions have taken place.

Keith, in speaking of the failures of abdominal surgery and hinderances to its progress, states, most of the mischief has been done by the surgeon himself. Time waits for no surgeon: "Delays are dangerous." "Procrastination is the thief of time." Formerly the phrase, obstructed bowels, was synonymous with death; to-day it means, use the test, operate, remove the cause and let the patient live. When done early, and by expert surgeons, and before structural lesions have formed, laparotomy for an intestinal obstruction will have as small a mortality as ovariectomy, or abdominal section for the removal of the uterine appendages. The physician of the

present and future who is not equipped to make the special diagnosis of obstruction, operate for its removal, or, have a surgeon operate, and before serious tissue lesions have taken place, is most certainly highly culpable and direct of duty. The best time to operate is when the diagnosis is made, and made early.

Dr. Joseph Price said he would make no delay by taxis for the reduction of strangulated hernia, but operate at once for its relief, and for the radical cure. Wyeth states, "do not wait longer than the lesion of intussusception is recognized; within the first twenty-four hours the prognosis will be more favorable, and the danger of a fatal termination will be increased with each day thereafter." If volvulus is not removed within a few hours by other treatment, abdominal section should be performed, the hand introduced and the loop untwisted. Constriction by bands, the vermiform appendix, the pedicle of an ovarian or uterine tumor, the Fallopian tube, diverticula, strangulation through slits in the omentum and mesentery and adhesions between the contiguous loops of intestines demand early operative interference, as do all other forms of intestinal obstruction. That taxis should not be done longer than five or ten minutes at any one effort, and that it may be repeated at intervals of half or one hour within the first six hours of the history of strangulation, and after twelve hours should not be practiced. The majority of cases which end fatally are those in which strangulation had existed twelve or twenty-four hours or more, and before surgical interference. Abdominal section, in a patient not exhausted by suffering or disease under asepsis and antisepsis, is almost free from danger, when done early by a surgeon skilled in the technique of intestinal and abdominal surgery.

Scientifically practiced massage and taxis have a limited range of application in the treatment of intestinal obstruction, are applicable to cases of obstruction due to a foreign body, an enterolith or fecal accumulations, and should only be resorted to before inflammatory changes have developed at the seat of obstruction and while patient is under anaesthesia.

The rule now is, not to wait hours or a day to do taxis, but do it only fifteen minutes, and never over thirty. Senn states true intestinal obstruction, whatever its cause may be, is as strictly a surgical affection as strangulated hernia, and remediable only by the same kind of surgical treatment. To let a patient die of the consequences of a removable cause of obstruction without an operation is a reflection upon the advances of modern aggressive surgery.

In doing an abdominal section for obstruction, the aim of the surgeon should be to save life, operate quickly, safely and cautiously, and not do an ideal operation, but economize time, minimize shock, lessen the stage of anaesthesia, prevent

unnecessary extrusion of bowels, and protect them with hot aseptic towels, irrigate with hot aseptic water, and prevent complications, making all the details of the operation aseptic, from beginning to end.

Insufflation of hydrogen gas is a valuable means of diagnosis in locating the seat of obstruction before tympanites has set in, and is best adapted at a time when most needed during the early stage of intestinal obstruction. If the colon dilates uniformly from the sigmoid flexure to the cæcum the obstruction must be sought higher up in the intestinal canal. The passage of gas through the ileo-cæcal valve, rendered incompetent by distention of the cæcum, is always attended by a characteristic gurgling or blowing sound, which is heard distinctly by applying the ear or stethoscope over the ileo-cæcal region. The sounds may be heard several feet away.

If the gas passes the ileo-cæcal valve, a pressure not in excess of that required to overcome it in a state of health, and if after inflation a thorough examination of the ileo-cæcal region by inspection, palpation and percussion reveals nothing abnormal, the search for the obstruction is continued by inflating the small intestines slowly, and making frequent examinations of the abdomen to ascertain the height to which inflation has been made, and to study the relative position of the different abdominal organs. Inflation is also a useful diagnostic resource in locating the obstruction during laparotomy for intestinal obstruction. The intestine below the seat of obstruction is always empty, collapsed and anæmic, as compared with the portion above the obstruction. When the obstruction is located high up in the intestinal canal, and the tympanites is extensive, the empty portion of the small intestines, has, by compression become displaced, and is often not readily found. In such cases the distention of the bowels from below will indicate to the surgeon at once the location and length of the intestine below the seat of obstruction, and will enable him to search for the obstruction from below upwards. The manipulation of the healthy intact portion of the intestinal canal in the search for the obstruction is by far a less hazardous procedure than the handling of the distended portion above the obstruction, rendered paretic, exceedingly vascular, and much softened by the obstruction. In cases where we suspect the presence of a perforation, inflation will demonstrate not only its existence, but also its location. Invagination is rare above the ileo-cæcal valve, and its location can be determined by inflation with hydrogen gas, and if resorted to early, it may prove the means of effecting reduction. In ileo-cæcal and colonic invagination slow and persistent distention of the colon with hydrogen gas, with the patient completely under the influence of chloroform, is the safest and most efficient

means of effecting reduction, and should always be resorted to whenever these conditions are recognized or even suspected.

Rectal inflation, as ordinarily practiced by forcing air into the rectum with bellows, or a Davidson's syringe, is not devoid of danger, as the force employed cannot be accurately regulated, or estimated. Insufflation of hydrogen gas from a rubber balloon is applicable in all cases of sub-acute and chronic invagination, and during the early stage of acute invagination, that is, before the passive hyperæmia in the invaginated portion has rendered reduction by this method impossible.

Should perforation take place, the accident is at once recognized by a uniform distension of the abdomen, from the entrance of the hydrogen gas into the peritoneal cavity, as well as by a sudden diminution of pressure readily felt by the person who makes compression of the balloon. The entrance of hydrogen gas into the peritoneal cavity is in itself a harmless occurrence, as the gas is non-irritant and perfectly aseptic. In such cases the insufflation must be followed at once by abdominal section and the necessary operative treatment of the invagination. (Senn.)

Senn states, intestinal obstruction irrespective of its cause is always followed by a series of consecutive pathological changes which independently of the partial or complete interruption of the passage of intestinal contents tends to destroy life.

The dilatation of the intestinal tube on proximal side of the seat of obstruction may give rise to such a degree of abdominal distension as to destroy life from suspension of important functions by mechanical pressure. In acute obstruction, the violent peristalsis on the proximal side of the occlusion causes an increased afflux of blood to the portion of bowel, the seat of exaggerated physiological function, which after cessation of peristaltic action remains in an intense venous and capillary engorgement. Hence transudation and exudation readily take place into the paravascular tissue, which combined with the capillary stasis attending this stage of the inflammatory process, often results in gangrene. The intestinal wall, in a state of inflammation, becomes permeable to pathogenic microorganisms, which after passing through the entire thickness of its wall enter the peritoneal cavity and induce septic peritonitis—a frequent immediate cause of death.

These facts are cogent reasons for adopting surgical measures in all cases of intestinal obstruction due to mechanical causes as soon as a probable diagnosis can be made. If this were done, the two greatest sources of immediate danger attending and following laparotomy, shock and septic peritonitis, if not entirely avoided, at least would be less likely to occur, and the tissues, the

seat of operation would be in a favorable condition for direct treatment.

Every physician, as a rule, on graduation appropriates to himself the prodigious title of surgeon. One may do some fair and moderately good general surgery, yet be an inferior, or bad abdominal surgeon, and unless he has had special training, practical experience, understands the technique of intestinal obstruction and prepared to meet every contingency that might arise and be master of the situation, he should not attempt the abdominal section.

In no other specialty do so many stupendous and hydra-headed complications arise, both in the obstruction and its cause. Opium, in the treatment of intestinal obstructions, should be numbered with the past. No physician has the moral or professional right to narcotize a patient, obscuring symptoms, which were they allowed to arise, would be highly indicative of surgical interference, causing his patient to sleep the sleep that knows no waking and leaves him a victim to narcosis in the valley and shadow of death.

Early diagnosis and early operation before structural lesions have occurred, when the patient is in the best possible condition for operation by a surgeon skilled in all the details of abdominal and intestinal surgery, who operates quickly, safely, expeditely, economizing time, minimizing shock, lessening the stage of anæsthesia and the protection of the viscera under aseptic precautions, little or no taxis and the technique of the operation having been so much simplified by Senn's intestinal anastomosis, lateral apposition, lateral implantation and intestinal exclusion and Senn's modification of Jobert's operation by circular enterorrhaphy will greatly lessen the mortality of intestinal obstruction in the future.

INTUBATION WITHOUT THE USE OF THE GAG OR EXTRACTOR.

Two Improvements on the Common Method, described in the Section on Surgery, at the Forty-first Annual Meeting of the American Medical Association, Nashville, Tenn., May, 1890.

BY GUIDO BELL, M.D.,
OF INDIANAPOLIS, IND.

Intubation has not as yet fulfilled the expectations of the medical profession. The relief after intubation is not so complete or so immediate as after tracheotomy; the membrane and mucus occlude the tube, and cause coughing and distress. Frequently the tube must be removed, cleansed, and again inserted. Nor has the difficulty of swallowing with the tube in the larynx as yet been overcome. Dr. W. E. Casselberry, of Chicago, two years ago recommended feeding the patient while the head is reclined downwards.

But at this time, I only wish to speak of two simplifications in the method of intubation, which render it one of the easiest of surgical procedures.

I discard both the gag and the extractor. The father or the nurse takes the child on his lap, holding firmly the little hands, as for an ordinary examination of the mouth or the throat. When the child opens its mouth, I pass the left index finger quickly into the mouth and behind the root of the tongue. Gagging follows and the larynx at once rises to the waiting finger. At this moment I put the tube in the larynx with the right hand, retaining it in place with the left index finger, withdrawing the instrument at once. This is done with such ease and quickness the child is scarcely aware of the operation, and does less resist when intubation is necessary a second time. Certainly the child will cough and make efforts to expectorate, but *gagging* is a sure sign that the tube has missed its proper place.

With an instrument in the child's mouth to hold the jaws apart, gagging is incessant, and the little one is excited and uncontrollable. Force then becomes necessary, which is manifestly dangerous in such a disease as diphtheria. But if the gagging is incited by the operator's finger, he is ready for the rising larynx, and can at once insert the tube.

There is no biting for a few seconds after the finger is thrust into the larynx; this we know from the practice of the veterinary surgeons, who thrust their pills and boluses at arm's length into the throat of the most vicious horse; the finger, however, may be protected by wrapping of adhesive plaster in front of the knuckle, as I always do.

I regard this method of intubation as the ideal operation for about 95 per cent. of all cases. By this way I have hardly ever caused any bleeding or discomfort to the child. It is done so quickly and so easily that the parents frequently express their astonishment, when told that the tube is inserted. I do not claim any special skill or training in introducing the tube into the larynx; the ease and success is all to be attributed to the method.

Occasionally the epiglottis remains adherent to the glottis; in such a case, the operator has only to raise the epiglottis from the side, causing a delay of about half a second. Or the child may be asphyxiated to such an extent that it does not gag; in that case the glottis does not meet the finger-tip, and the operator advances his finger along the anterior wall of the pharynx until the glottis is felt, and the tube is inserted.

The most common error is in introducing the finger too far behind the root of the tongue. The distance from the teeth to the larynx is from 3 to 3½ inches, according to the age.

Denhardt's gag serves an excellent purpose; nevertheless, the following advantages are apparent, and may be claimed, for my method of intubation without the gag:

1. The operator does not need an assistant.

2. The child is not excited, and does not dread a repetition of the operation.

3. The tissues of the pharynx and larynx are not injured by sudden and unexpected motions of the child. I have intubated in this way over a hundred times; it does not take me longer than three seconds. I have been successful in the first attempt—except in two or three asphyxiated cases. My last case was of that kind.

To those not accustomed to the feeling of the child's glottis, I may say that it gives the same sensation to the finger as the os uteri. If it feels smeary, we may know that the suffocation is due to membrane rather than to œdema; and so, by the touch, we get a valuable symptom for the prognosis.

The second improvement of the customary method of intubation, is in the removal of the tube by pressing it out of the larynx by grasping the larynx externally with the fingers, thus discarding the extractor entirely.

The writers on intubation, O'Dwyer, Dillon Brown, Waxham, and others, all concede that the application of the extractor is more difficult than intubation itself. Then why use an extractor at all, if it may be dispensed with? I simply squeeze the tube from without up to the fauces, and hook it from the mouth with the finger. I have done so in five cases where removal with the extractor had repeatedly failed. In one case, the neck was sore from blistering, and in another case the tube selected was too large for the larynx; nevertheless, removal did not cause much pain or discomfort.

I fasten the thread to the cheek, as in my earlier cases, I feared losing the tube—one was in the intestine ten days—and now fastening the thread has become a habit with me. Several times I have removed the tube so as to feed the patient; I do not know if this is advisable, as repeated intubation causes irritation.

In conclusion, I may say that since I have discarded the gag and extractor, intubation is easier to me than catheterization of the female bladder.

Intubation did not increase very much the percentage of recoveries in my practice. The most of the children have died; but intubation could not be blamed for that—except in one case, where the boy, 18 months old, was allowed by his mother to swallow too hastily.

I saw a case where gangrene followed diphtheria, destroying all facial muscles on one side, then the eye, and then, entering the brain, finally killed the boy.

I saw in another case, the whole parotid fall out in one piece, and recovery followed. I had a case in which two distinct places with a dull sound could be sharply circumscribed on the chest, and there I refused intubation. Three days afterward the same places were tympanitic, and strong emetics saved the girl's life. The sharply circum-

scribed infiltration, and the change from the dull to the tympanitic sound, make evident the diphtheritic nature of the infiltration. In short, diphtheria in the last years showed a more malign character in Indiana than before.

In all cases, the parents have expressed their thanks that everything had been done for the dear ones, but said that for the death we could not be responsible.

Just because we must do something in these hopeless cases, and just because we cannot promise much, therefore our doing should be very mild, and my improvements in intubation may become valuable to the practitioner.

DIAGNOSIS AND OPERATIVE TREATMENT OF GUNSHOT WOUNDS OF THE STOMACH AND INTESTINES.

Read by Invitation in the Surgical Section of the Tenth International Medical Congress, August 8, 1890

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The existence of a visceral lesion of the stomach or intestines must be suspected in every case where a bullet penetrates the abdominal cavity; hence the first step in the diagnosis of gunshot injuries of these organs must be directed towards establishing the fact that penetration has occurred.

DIFFERENTIAL DIAGNOSIS BETWEEN NON-PENETRATING AND PENETRATING GUNSHOT WOUNDS OF THE ABDOMEN.

This part of the diagnosis may be easy or difficult, according to circumstances. If the bullet has passed through the body, and the wounds of entrance and exit occupy such positions that a direct line connecting them will necessarily pass through the abdominal cavity, there can be but little doubt that both abdominal walls have been perforated at opposite points, and that the bullet has traversed that part of the peritoneal cavity interposed between them. In obese persons, the exact outlines of the peritoneal cavity cannot be located with absolute accuracy, and on this account some doubt may remain, in case two bullet wounds, made by a single bullet, are found over the anterior or lateral aspect of the pendulous abdomen, whether the peritoneal cavity between the wounds of entrance and exit falls in the track made by the bullet.

In a case of this kind that recently came under my observation, I decided this important question by injecting hydrogen gas into the wound of entrance. A glass tube corresponding to the size of the bullet was connected with the rubber tube of a rubber balloon in which the gas was stored, and was inserted into the wound of entrance; by

gently compressing the balloon the gas was forced along the track made by the bullet until it escaped at the wound of exit, which demonstrated that the wounds communicated with each other, and consequently must have been made by the same bullet. In order to show conclusively that the peritoneal cavity had not been opened at any point along the track made by the bullet, the wound of exit was closed by compression, made with self-locking hæmostatic forceps, and insufflation was resumed. After the wound had become fully distended, the resistance to the escape of gas was suddenly increased, which would not have been the case had the peritoneal cavity been opened, as in that case the gas would have escaped into the peritoneal cavity, making a free tympanites which could have been easily recognized by the usual physical symptoms. Instead of this condition, however, a circumscribed area of emphysema was caused by a continuation of the insufflation, which, with the absence of a free tympanites and the escape of gas at the wound of exit, I regarded as a positive evidence that penetration had not occurred. The wounds were not drained, but were treated and dressed in accordance with strict antiseptic precautions, and healed by first intention.

The use of the probe in such cases is of no value whatever in determining the existence or absence of penetration, and a reliance upon it as a diagnostic measure may lead to serious errors, both in diagnosis and treatment. Air should never be used for insufflating a bullet track for diagnostic purposes, as the air injected might become the direct means of infection. Hydrogen gas is a non-toxic, aseptic substance with valuable inhibitory antiseptic properties; qualities which render it the most desirable substance to be used for inflating tubular wounds for diagnostic purposes.

Wounds through the body made with a bullet, in parts of the abdomen where, from the direction of the track, it is not certain whether or not the peritoneal cavity has been opened, call for a most careful examination to determine this point. If this cannot be done satisfactorily with the hydrogen gas test, the course of the bullet must be followed by a careful dissection from the wound nearest the point where we have reason to suspect a tear or perforation of the parietal peritoneum. If only one wound, the wound of entrance, is present, the question of penetration depends upon the shape and size of the bullet, the distance from which and direction in which the shot was fired, the amount and nature of the clothing covering the point of impact, the position of the patient at the time he received the injury, and the anatomical character of the parts interposed between the wound of entrance and the abdominal cavity.

1. *Shape and Size of the Bullet.*—Other things being equal, the larger the bullet the greater the

probability of deep penetration, as in the present construction of firearms the amount of powder in the cartridge is proportionate to the weight of the bullet. A conical bullet penetrates more deeply than a round bullet of equal weight. At close range, bullets fired from firearms of the smallest calibre possess sufficient force to penetrate the soft tissues of the thickest abdominal wall. In my experiments on dogs with different sized shot, I used a double-barreled shotgun, No. 12 gauge; the cartridges were charged with the usual amount of powder used for duck hunting, and contained from four to twelve shots. The dogs were etherized, strapped on a Pasteur table and placed in an erect position, and the shooting was done at a distance of twenty feet. The largest shot, calibre 18, often passed through the body, if no bone came in its way, while even No. 8 shot invariably penetrated the anterior abdominal wall.

2. *Distance and Direction of the Bullet.*—In reference to the distance at which the shot is fired, the result will be largely influenced by the size and shape of the bullet and the quantity of powder used in the charge. A 38- or 45-calibre conical bullet propelled by the explosion of sixty to seventy grains of powder, fired at a distance of two hundred paces, will not only penetrate the abdominal cavity, but will pass through the body if its course is not impeded by the ribs, spinal column, or pelvic bones; while a round bullet of 22-calibre may fail to pass through the fleshy part of the abdominal wall at a distance of ten to twenty paces. In my experiments on the cadaver I used a 22-calibre Stephenson rifle and conical bullets. The cadaver was placed in the erect position, and the bullet was fired at a distance of twenty feet, directly in front of the subject. In every instance the bullet perforated the anterior abdominal wall, passed across the peritoneal cavity, and was found lodged at variable depths in the posterior abdominal wall.

The direction of the bullet plays an important part in the differential diagnosis between penetrating and non-penetrating wounds of the abdomen. A bullet fired in a direction which corresponds with the shortest and most direct route from the surface into the peritoneal cavity is most likely to cause a penetrating wound. Thus, bullets will enter the abdominal cavity with a minimum degree of force if in their course they pass through the thinnest portion of the abdominal wall, which corresponds with the linea alba and, notably, the umbilicus. A bullet taking a less direct route, especially if of small calibre or if fired at great distance, may become arrested in its course after passing through from two to six inches or more of soft tissues before it reaches the abdominal cavity. A bullet may reach the abdominal cavity even if the external wound be located a considerable distance from this cavity. In one of my cases, a suicide, the bullet entered the

cavity of the chest on the left side, passed through the lower lobe of the left lung, and entered the abdominal cavity through the diaphragm, where it perforated the stomach from above downwards. Perforation of the intestines may also take place in the lowest part of the abdominal cavity by the passage of a bullet through the pelvic structures, the external wound being remote from the perforation in the parietal peritoneum and the visceral lesions.

3. *Amount and Nature of Clothing at Point of Impact of Bullet.*—Many lives have been saved by thick, firm clothing breaking the force of the bullet, which then causes an ordinary, innocent flesh-wound instead of a penetrating wound, which would have been caused had the surface been less efficiently protected. In other cases the injury was modified by the bullet impinging against a button, belt, buckle, note- or pocket-book, which not only diminished the force of the missile, but changed its course from a direct route into the abdominal cavity into an oblique direction through its wall. The suicide who wants to make sure of the deadly intent upon his own life should divest himself of the clothing covering the heart, so as to remove any obstacles which might deviate or diminish the force of the bullet.

4. *Position of Patient.*—In every case of gunshot wound of the abdomen it is important to ascertain as nearly as possible the exact position of the patient at the instant the shot was fired, as information thus obtained will be of great value in determining beforehand the probable course of the bullet. It is on account of the change of the relative position of the parts after the infliction of the wound that the track made by the bullet cannot usually be followed with a probe, as by the change in the position of the muscles, and by the sliding of fascia and skin, obstructions are formed in different parts of the tubular wound. Remembering the exact position of the patient and his assailant, and imagining the direction of the bullet, its course through the tissues can be ascertained with at least an approximate degree of accuracy.

5. *Anatomical Character of Parts Interposed Between the Wound of Entrance and Abdominal Cavity.*—A conical bullet of large calibre, fired in close proximity to the body, will penetrate the tissues irrespective of their anatomical character and without deflection. Deflection of small bullets, and of large bullets fired at a considerable distance, is occasionally caused when they strike a smooth bony surface at an oblique angle, an occurrence which abruptly deviates the course of the missile. McGraw, of Detroit, has shown experimentally that deflection of bullets does not take place as often as had been formerly supposed. We have no reason to believe that the soft tissues of the abdominal wall, under any circumstances, offer sufficient resistance to change the course of

a bullet. A partially spent bullet striking obliquely against the convex surface of the ribs, or against the spinous or lateral processes of the vertebræ, or the pelvic bones, may deflect a bullet in its course, and what appears upon first sight a penetrating wound may be simply a wound of the abdominal wall, with the bullet lodged in the tissues at a considerable angle from the line of entry. Deflection should therefore be thought of as a possible occurrence only when the bullet has entered the body and has met with a bony resistance in its course towards the peritoneal cavity.

Exploration of Parietal Wound.

Examination of gunshot wounds of the abdominal wall must be made with special reference to a positive differential diagnosis between penetrating and non-penetrating wounds. The diagnostic aids which I have just enumerated should be applied in every case before any attempt is made to demonstrate the depth and course of the wound by digital or instrumental exploration. A positive diagnosis must, however, be withheld until the exact course of the bullet has been revealed by a careful exploration of the wound-canal from the point of entrance of the bullet to the peritoneal cavity, if the bullet has penetrated, or sufficiently far to prove that the abdominal cavity has not been invaded.

Certain precautions should never be neglected during the first examination of gunshot wounds of the abdomen. In the first place, undue haste must be scrupulously avoided. A wound of the abdominal wall should never be touched without first procuring for the wound of entrance and for the surface a considerable distance beyond it, a perfectly aseptic condition by thorough disinfection. The parts should be scrubbed with warm water and potash soap, and then washed with a 1-1000 solution of corrosive sublimate, or a 5 per cent. solution of carbolic acid. The surgeon's and assistants' hands should be rendered aseptic in the same manner, special care being taken to disinfect the spaces underneath the finger-nails. Digital or instrumental exploration of gunshot wounds of the abdomen without the necessary antiseptic precautions must be regarded, in the light of modern surgery, as nothing less than criminal negligence, and such recklessness may become the direct cause of a fatal wound complication in case of injuries which, if treated upon strict antiseptic principles, would have resulted in recovery. The instruments used in exploring the wound must be rendered aseptic by boiling them for at least five minutes, or by passing them through the flame of an alcohol lamp.

If a large bullet has penetrated the abdominal cavity by the shortest possible route through a thin portion of the abdominal wall, the fact that penetration has taken place often becomes evident by prolapse of the omentum into the wound-canal.

In such a case, the surgeon verifies the diagnosis by seizing the visible portion of the omentum with a pair of dissecting or hæmostatic forceps, and by making traction, pulls the omentum further into the wound for identification. The appearance of the structure, as well as the course of the blood-vessels, will enable him to decide whether the prolapsed tissue is a part of the omentum, or a piece of fat from the subperitoneal fat or the panniculus adiposus. If the part under examination proves to be the omentum, the existence of penetration has been conclusively demonstrated, and the proper treatment for penetrating wounds is at once to be carried into effect.

The cases where such a rapid differential diagnosis between non-penetrating and penetrating gunshot wounds of the abdomen can be made, are comparatively few. In the majority of cases, exploration of the wound by a careful dissection furnishes the only positive and reliable means in determining that the bullet has entered the peritoneal cavity.

Digital exploration of the wound should never be relied upon in ascertaining the depth and course of the wound, as this procedure is not infallible in making a correct diagnosis, and as, in case the bullet has penetrated the abdominal cavity, the finger may push before it and into the peritoneal cavity infected foreign substances.

The use of the probe should be discarded in the examination of gunshot wounds of the abdomen for diagnostic purposes. The wound-canal is often so tortuous from displacement of the tissues forming its walls that it cannot be followed with a probe without fear of making false passages, an occurrence which could not fail to lead to erroneous conclusions in reference to the extent and course of the wound, and in regard to the presence of visceral complications which might demand prompt operative treatment.

In every case of gunshot wound of the abdomen, the track made by the bullet must be followed by enlarging the wound by an incision at least two inches in length, which should intersect the perforation where its diameter is greatest, and in the direction of the principal muscle involved by the perforation. Before this is done all the preparations for a laparotomy should have been completed, everything required in the treatment of visceral wounds should be on hand, and the consent of the patient and his friends obtained to proceed and do what may become necessary in case it is found that the bullet has entered the abdominal cavity and has caused visceral injuries which demand surgical interference.

It is often not an easy task to follow the track of a bullet with the scalpel through a thick abdominal wall. The best method of procedure is to insert a grooved director as far as it will pass without resistance, and then divide the tissues layer after layer, catching bleeding vessels with

hæmostatic forceps as fast as they are cut, in order to keep the field of operation as nearly as possible in a bloodless condition. The bullet frequently discolors the tissues, and these discolorations are often important landmarks in following the wound. The divided tissues are held out of the way with sharp-toothed retractors, in order to enable the operator to follow the course of the bullet with his eye as well as with his instruments. When the point of the director is reached it becomes necessary to make a close inspection, and under no conditions should the knife be used until the wound-canal can again be identified and followed with the eye or the director. The dissection is to be made carefully and slowly until the opening in the parietal peritoneum is reached, which completes the first part of the diagnosis. In non-penetrating wounds the dissection is carried down to the bullet, which is then removed. In case this is not practicable on account of the location of the wound, the nature of the parts involved, or the length of the track, it is extended sufficiently far to satisfy the operator that the abdominal cavity is intact. The operation is completed by adopting the usual treatment for non-penetrating wounds. By following the methods above described in differentiating between a non-penetrating and penetrating gunshot wound of the abdomen, the surgeon is able to make a positive anatomical diagnosis, and in either case to adopt and carry into effect a rational plan of treatment.

1. Diagnosis of Visceral Wounds of the Stomach and Intestines.

Quite recently the assertion has been made by several good surgeons that laparotomy is a justifiable procedure in every case of penetrating gunshot wound of the abdomen, and the claim is made at the same time that a bullet which enters the peritoneal cavity must almost of necessity inflict visceral injuries which require direct surgical treatment. The statement must, however, be accepted as true, that in the absence of serious visceral lesions, penetrating gunshot wounds of the abdomen are injuries from which the patients are very likely to recover without operative treatment, and that when such patients are subjected to laparotomy, death may occur in consequence of the operation, and not as a result of the injury. An injury of this kind is a subcutaneous lesion which usually heals without any inflammation or suppuration, provided the bullet has not carried with it into the abdominal cavity foreign infected substances. I am firmly convinced that in most cases of spontaneous recovery after penetrating gunshot wounds of the abdomen, the favorable termination was due to the fact that the bullet did not produce any visceral lesions of the gastro-intestinal canal. In two of the six cases of gunshot wound of the abdomen which have come under my observation during the last three years—and

which will be reported further on—the absence of perforating wounds of the stomach and intestines was demonstrated by the hydrogen gas test, and both of these recovered. This appears like a large percentage, but my own experience so far has been in direct contrast with the assertions of a number of surgeons that all penetrating wounds of the abdomen require treatment by laparotomy.

Experiments on the Cadaver.

In order to throw more light on this important subject, I made a number of experiments on the cadaver to determine the frequency and number of visceral wounds of the stomach and intestines that may be expected in cases of penetrating gunshot wounds of the abdomen when the course of the bullet can be determined beforehand. These experiments I will relate very briefly.

The cadaver was suspended and placed in the erect position against a wall. The shooting was done at a distance of ten feet with a Stephenson rifle, carrying a 22-calibre conical bullet. The rifle was held on a level with the wound of entrance, so as to give to the bullet as nearly as possible an exact antero-posterior direction; that is, it was intended that the wound in the anterior abdominal wall should be on the same level as the wound in the posterior wall. As the experiments were made from one to three days after death, the abdomen was in every case somewhat distended by accumulation of gas in the intestines.

Experiment 1.—Male, fifty-four years, dead twenty-four hours, emaciated, rigor mortis well marked. Bullet entered through the linea alba, 1.8 cm. below the umbilicus. The abdomen was opened at once, and it was ascertained that the bullet had passed between the transverse colon and small intestine without causing any visceral injury, and had lodged in the posterior abdominal wall.

Experiment 2.—Male, forty-five years, dead thirty-six hours, very little emaciation. Wound of entrance 4 mm. to the right of the median line and 8.5 cm. below the umbilicus, producing in its course through the abdominal cavity one perforation on convex border of loop of small intestine, one perforation of the sigmoid flexure, and a wound in the upper portion of the bladder, which was found adherent to a loop of the ileum.

Experiment 3.—Male, thirty years, dead thirty hours, fairly well nourished. Entrance of bullet 4.5 cm. to the left of linea alba and 2 cm. below the umbilicus. Result: four perforations of the small intestine at mesenteric border, one on convex side, and one through the centre of adjoining loop.

Experiment 4.—Male, sixty years, dead eighteen hours, advanced marasmus. Bullet entered 7 cm. to the left of middle line and 1.5 cm. below the level of the umbilicus, causing three perforations in adjoining loops of intestine.

Experiment 5.—Male, forty-six years, dead twenty-four hours, greatly emaciated. Wound of entrance 5 mm. to the left of the median line and 1 cm. above the umbilicus, producing a double perforation of the transverse colon.

Experiment 6.—Male, thirty-five years, dead eight hours, well nourished, considerable tympanites. Ball entered 7.5 cm. to the right of the middle line and 15 mm. above the umbilicus, making in its course through the peritoneal cavity a marginal wound of the transverse colon.

Experiment 7.—Male, fifty-six years, dead eighteen hours, pronounced emaciation. Entrance of bullet 6 cm. to the left of linea alba, and 3 cm. above the level of the umbilicus. No visceral injuries could be found on most careful inspection of the abdominal cavity, the bullet having passed between the transverse colon and the small intestine.

Experiment 8.—Male, forty years, dead twenty-four hours, moderate emaciation. Wound of entrance 1.2 cm. to the right of median line, and 2.5 cm. below the umbilicus. Examination of the abdominal cavity showed absence of any visceral injuries that would require surgical treatment, the bullet having passed through a triangular space formed by two adjoining loops of small intestine and the transverse colon.

Experiment 9.—Male, thirty-seven years, dead thirty-seven hours; no emaciation. Bullet entered 9 mm. to the right of the median line and 2.5 cm. above the umbilicus. Liver much enlarged, and stomach dilated so that the great curvature extended below the level of the umbilicus. In searching for visceral injuries it was found that the bullet had passed through the margin of the liver close to the suspensory ligament, above the lesser curvature of the stomach, perforating at the same time the head of the pancreas.

Experiment 10.—Male, twenty-five years, dead thirty-six hours, well nourished. Wound of entrance 3.9 cm. to the left of the middle line and 9 mm. above the level of the umbilicus. The internal injuries produced consisted of one marginal wound and three double perforations of the small intestine, with two wounds of the mesentery.

Experiment 11.—Male, forty-nine years, dead thirty-two hours, moderate emaciation. Bullet entered 3 cm. to the left of the median line and 3.3 cm. above the umbilicus, passing in its course through both walls of the cardiac extremity of the stomach near the great curvature.

Experiment 12.—Male, sixty-two years, dead seventy-two hours, considerable obesity. Wound of entrance 7.5 cm. to the right of the median line and 3.1 cm. above the umbilicus, causing a wound of the right lobe of the liver and passing through the lower segment of the right kidney.

Experiment 13.—Male, forty-one years, dead twenty-three hours, extreme emaciation. Ball entered 9 mm. to the right of the median line and

3.6 cm. above the level of the umbilicus. The only internal injury found was a small wound at the very margin of the left lobe of the liver, the bullet having passed between the pyloric extremity of the stomach and the transverse colon.

Experiment 14.—Male, thirty-six years, dead twenty-eight hours, moderate emaciation. Wound of entrance 4.2 cm. to the right of the median line, and 3 mm. above the umbilicus, passing through the transverse colon.

The result of these experiments confirmed me in the opinion that I have entertained for years, that a bullet passing through the abdominal cavity does not produce visceral injuries as constantly as we have been taught to believe. It will be seen from the experiments that in four instances, experiments 1, 7, 8, and 9, the bullet passed through the abdominal cavity in an antero-posterior direction without causing any visceral injury which would require surgical interference. In experiment 13, the bullet grazed the margin of the liver, producing an insignificant wound which could not have given rise to more than trifling hæmorrhage, and which would have healed promptly without any direct treatment. In the remaining experiments where no visceral lesions were produced, the only possible indications for laparotomy would have arisen on account of hæmorrhage; but as a careful examination did not reveal the existence of injury of any vessel of sufficient size to give rise to this indication, it is only fair to assume that patients would recover from such injuries without any special surgical treatment.

If in two out of six cases, and in four out of fourteen experiments, a bullet can traverse the abdominal cavity through from wall to wall without inflicting a mortal visceral injury, it appears certainly of the greatest importance, from a practical standpoint, to draw a line of distinction in the treatment of penetrating gunshot wounds of the abdomen with and without visceral lesions. Laparotomy should not be performed simply because a bullet has entered the abdominal cavity, but its performance should be limited to the treatment of intra-abdominal lesions which, without operative interference, would tend to destroy life.

Course of Bullet.

My clinical experience and experimental work have satisfied me that the course of the bullet determines not only the existence, but also the number of visceral wounds of the gastro-intestinal canal. It may be laid down as a rule, that the shorter the route of the bullet through the abdominal cavity, the greater the possibility that the intestines will escape injury, and the fewer the number of perforations. A bullet passing through the peritoneal cavity in an antero-posterior direction will meet with fewer intestinal loops than one that is fired through the abdomen ob-

liquely or from side to side. The experiments related have demonstrated conclusively that bullets passing through the abdomen at points above the umbilicus are most likely to miss the intestines and to inflict simple penetrating wounds. On the other hand, bullet wounds in the upper segment of the abdomen most frequently inflict visceral injuries which require treatment by laparotomy for the arrest of dangerous hæmorrhage, as a wound of the liver, kidneys, or spleen gives rise to alarming and often fatal hæmorrhage. My experiments on dogs have taught me that the largest number of perforations are produced by bullets which pass from side to side, or obliquely through the abdomen at a point below the level of the umbilicus. A bullet passing through the abdominal cavity in an antero-posterior direction seldom causes more than four perforations, while fourteen and sixteen perforations are often found if it has passed transversely or obliquely through the abdomen at a point below the umbilicus.

The practical deductions to be drawn from the above remarks are that, if in any given case it can be shown from reliable information that a bullet has crossed the abdominal cavity in an antero-posterior direction at or above the umbilical level, the gastro-intestinal canal may have escaped injury, while if it is probable that the bullet has passed through the abdomen from side to side or obliquely at a point below the umbilicus, it is not only almost certain that it has injured the intestines, but it is almost equally certain that it has produced from three to sixteen perforations.

General Symptoms.

The general symptoms in cases of gunshot wounds of the abdomen, with the exception of those due to profuse internal hæmorrhage, furnish absolutely no reliable information in the differentiation between simple penetrating wounds and penetrating wounds complicated by visceral injuries.

Severe shock may attend even a non-penetrating wound, and it may be entirely absent in cases of multiple perforations. In one of my cases where I found twelve perforations, the patient walked a considerable distance immediately after he was shot, and was then transported on a wagon six miles to the hospital, and on his arrival he did not present a single symptom of shock or any other evidence of serious internal injuries.

Vomiting takes place as frequently in wounds of the abdominal wall and simple penetrating wounds as when the viscera have been injured.

Pallor is present in all gunshot wounds of the abdomen soon after the receipt of the injury, and it is only more pronounced when produced, at least in part, by sudden and severe internal hæmorrhage.

Pain is a very unreliable symptom, as it may be moderate or almost completely absent soon

after the injury has been inflicted, even when subsequently multiple perforations are found.

The pulse at first is slow and compressible in all cases of gunshot wounds of the abdomen, and nothing characteristic in its qualities is observed even if the stomach or intestines have been injured.

Hæmorrhage caused by wounds of any of the large vessels, mesentery, or any of the vascular organs, as the spleen, liver or kidneys, gives rise to progressive anæmia, small, rapid pulse, cold, clammy perspiration, dilated pupils, yawning, vomiting, and, in extreme cases, syncope and convulsions.

Local Symptoms.

The local symptoms are of no more value in determining the existence of visceral injuries in penetrating gunshot wounds of the abdomen than are the general symptoms just enumerated.

1. *Hæmorrhage.*—External hæmorrhage is slight or entirely wanting, unless an artery or vein in the abdominal wall has been injured. The bleeding from visceral wounds gives rise to accumulation of blood in the peritoneal cavity; this can be recognized by physical signs which denote the presence of fluid in the free abdominal cavity and by the general symptoms indicating progressive anæmia; increasing pallor of the face and visible mucous membranes, small, feeble pulse and dilated pupils. Gunshot wounds of the stomach are often followed by hæmorrhage into this organ and hæmatemesis. Hæmorrhage into the bowels from wounds of the intestines is seldom followed by bloody stools sufficiently early to be of any diagnostic value.

2. *Emphysema.*—Circumscribed emphysema in the tissues around the track of the bullet has been regarded as an important sign of the existence of intestinal perforation. This symptom is misleading and absolutely devoid of diagnostic value, as I have seen quite extensive emphysema of the subcutaneous tissues along the track of a bullet-wound of the abdominal wall where I was able to determine positively that the bullet did not penetrate the peritoneal cavity. It is very seldom present as the result of escape of gas when the stomach or intestines have been perforated.

3. *Free Tympanites.*—The accumulation of any considerable quantity of gas in the peritoneal cavity can be easily recognized by the disappearance of the normal liver dulness caused by the presence of gas between the surface of the liver and the chest-wall. This condition has been sought for in cases of perforating wounds of the abdomen and has been laid down as one of the symptoms which point to the existence of visceral wounds of the gastro-intestinal canal.

In the normal condition the quantity of gas contained in the intestines is so small that even if all of it should escape into the peritoneal cavity its presence in this locality could not be recog-

nized by physical signs. If we remember that only a small portion of the gaseous contents of the intestinal canal will escape even if a number of perforations exist, it is evident that this symptom should not even be taken into consideration in making a diagnosis. In more than a hundred experiments on dogs I never found enough gas in the peritoneal cavity, after penetrating gunshot wounds of the abdomen, to be recognized by physical signs, and I am confident that the same holds true in gunshot wounds of the abdominal cavity in man.

4. *Escape of Fæces.*—Escape of fæces through the bullet-wound is of exceedingly rare occurrence, and is only possible when the wound has been made with a large bullet and when the visceral wound is directly opposite the internal opening in the abdominal wall. It is met with more frequently in wounds of the large than of the small intestine. When this symptom is present, it is conclusive proof of the existence of a visceral wound of the intestines and the character of the intestinal contents will furnish some indication as to what part of the bowel has been injured.

With the exception of the last mentioned symptom, there is nothing about the local or general symptoms in cases of perforating gunshot wounds of the abdomen that would enable the surgeon to decide with any degree of positiveness whether the bullet had produced any visceral injuries of the gastro-intestinal canal, and, consequently, whether laparotomy should or should not be performed.

I think every modern surgeon will agree with me in the assertion that a perforation of any portion of the gastro-intestinal canal large enough to permit the escape of the contents of the stomach or intestines into the peritoneal cavity must be considered for all practical and medico-legal purposes a mortal injury, and that its discovery furnishes a positive indication for laparotomy. In exceptional cases, where all the conditions are favorable for such a termination, a spontaneous recovery may take place by the wounded intestine or stomach forming speedy adhesions with serous surfaces, thus protecting the peritoneal cavity against infection. One of the most important conditions for such a favorable termination to take place is that the wounded organ should be empty at the time the injury is inflicted and until the peritoneal cavity has been shut off by adhesions. These cases, however, are the exception; extravasation, septic peritonitis, and death are the rule.

If a simple penetrating wound of the abdomen is an injury from which a large majority of patients recover without exposing them to the additional risks of a laparotomy, and since bullet-wounds of the gastro-intestinal canal are attended by such an enormous mortality without oper-

ative interference, the practical value and importance of a correct diagnosis before deciding upon a definite plan of treatment becomes apparent. Hence the necessity of resorting to the use of the

Hydrogen Gas Test in the Diagnosis of Perforating Gunshot Wounds of the Abdomen.

It is apparent that if some infallible diagnostic test could be applied in cases of penetrating gunshot wounds of the abdomen, which would indicate to the surgeon the presence or absence of visceral lesions of the gastro-intestinal canal, the indications for aggressive and conservative treatment would become clear.

As we can never expect by a study of clinical symptoms, or by the ordinary physical examination to fill this gap, I was induced three years ago to search for some reliable test which in such cases should prove that the penetrating bullet had injured some portion of the gastro-intestinal canal. It occurred to me that a wound in the stomach or intestine should be sought for in some such way as the plumber locates a leak in a gas-pipe. The first object to be accomplished was to prove the permeability of the entire gastro-intestinal canal to inflation of air; and the next step was to find some innocuous gas which when inflated would escape from the intestinal wound into the peritoneal cavity, and from there through the external wound, where its presence could be demonstrated by some infallible test.

Permeability of the Ileo-Cæcal Valve to Rectal Insufflation of Air or Gas.

A great deal has been said and written in reference to the permeability of the ileo-cæcal valve to injections of fluids into the rectum, or to the insufflation of air or gases. The majority of those who have studied this subject clinically or experimentally make the positive assertion that the ileo-cæcal valve is perfectly competent and effectually guards the ileum against the entrance of both fluids and gases forced into the rectum; while others insist that it is permeable only in exceptional cases, and only a few admit that its resistance can be overcome by a moderate and safe degree of pressure. I made a number of experiments on dogs to test the resistance of the ileo-cæcal valve to rectal injections of fluids, and found that the force requisite to overcome it was so great that in every experiment where I succeeded in injecting fluid into the ileum, I found multiple longitudinal lacerations of the peritoneal surfaces of the cæcum and colon. The experiments with insufflation of air and hydrogen gas proved uniformly successful, not only in causing incompetency of the ileo-cæcal valve under a pressure which never resulted in injury to any of the intestinal tunics, but in every instance I could force the air or gas from anus to mouth. Of the many experiments which I made, I will relate only one

in illustration of the manner in which the experiments were made, and the results.¹

Experiment.—"Dog, weight thirteen pounds. Animal profoundly etherized, and air forced into the rectum through short rectal tube connected by rubber tubing with inflated rubber balloon. The distended colon could be clearly mapped out by percussion before a gurgling sound in the region of the ileo-cæcal valve indicated that the air had entered the ileum. As soon as the air commenced to distend the ileum the middle of the abdomen became prominent and tympanitic. It was found that as soon as the ileo-cæcal valve had been rendered incompetent by the gradual elastic dilatation of the cæcum, less force was required in distending the remaining portion of the gastro-intestinal canal. The inflation was carried to the extent of distending the stomach, an event which was easily recognized by a considerable prominence in the epigastric region which was tympanitic on percussion. At this time an elastic tube was inserted into the stomach, and its free end immersed under water. Bubbles of air escaped freely, and the abdominal distension was materially diminished. As the inflation was continued the air escaped through the stomach tube, showing that a moving current of air existed between the rectal and stomach tube."

The same experiment was made on the human subject with similar results, showing that in the human being the ileo-cæcal valve can be rendered incompetent by rectal insufflation of air or gas with the same ease as in the lower animals. These experiments demonstrate conclusively that in the human subject by a moderate degree of force, short of producing any injury of the tunics of the intestines, air can be forced along the entire alimentary tract, and that this procedure can be employed with perfect safety for diagnostic and therapeutic purposes in all cases where the tissues of the intestinal wall have not suffered too much loss of resistance from antecedent pathological changes.

Accurate experiments to determine the force required to render the ileo-cæcal valve incompetent by insufflation of air or gas had so far not been made, and as it was exceedingly important to obtain some accurate information on this subject, a number of experiments were made on dogs and on the human subject. In all experiments air or hydrogen gas was used. The inflation was made with a rubber balloon. The pressure was estimated either with a mercury gauge, or with a manometer, such as is used by gas-fitters and plumbers. The manometer or mercury gauge was connected by means of rubber tubing with the rectal tube on one side, and the rubber balloon on the other. The rubber balloon in which the hydrogen gas was collected held four gallons,

¹ Journal of the American Medical Association, June 23-30, 1888.

and numerous experiments showed that when the gas was forced through the opening of a stop-cock, the lumen of which was about the size of an ordinary knitting needle, a pressure upon the balloon equal to two hundred pounds (ninety kilograms) would never register more than three pounds (1.3 kilograms) of pressure to the square inch. The escape of air or gas from the rectum was prevented by an assistant pressing the margins of the anus against the rectal tube. I will give an account of only a few of the experiments to illustrate this part of our subject.

"*Experiment 15.*—Dog, weight thirty-five pounds (16 kilograms). Immediately after death the lower portion of the rectum was isolated and the rectal tube inserted and fixed in its place by tying a string firmly around the rectum. The abdomen was opened and the intestines left *in situ*. The ileum was cut transversely six inches above the ileo-cæcal valve and a glass tube inserted into the distal end, which was also tied in. Hydrogen gas was inflated from a rubber balloon. Under a pressure of three-quarters of a pound (.3 kilograms) the cæcum dilated, and a moment later the gas escaped from the gas tube and was ignited. The flame remained steady under a pressure of from one-half to three-quarters of a pound (.2 to .3 kilograms)."

"*Experiment 25.*—Dog, weight eighteen pounds (8 kilograms). Rectal insufflation of hydrogen gas, the dog being fully under the influence of ether. The colon and cæcum were only moderately distended when the gas under one-quarter of a pound (.1 kilogram) of pressure passed the ileo-cæcal valve with an audible gurgling sound. Under one pound (.4 kilogram) of pressure the abdomen became uniformly distended and tympanitic, and when an elastic tube was introduced into the stomach the escaping gas was ignited and burned with a steady flame as long as the pressure was continued."

"*Experiment 18.*—Strong, healthy young man. The subject was placed flat upon his back and hydrogen gas was forced into the rectum from a rubber balloon; at first the gas was forced in very slowly under a pressure of one and a half pounds (.6 kilogram) which distended the colon visibly as far as the cæcum. As the distension appeared to remain the same the pressure was increased to two pounds (.9 kilogram), when suddenly the indicator of the manometer receded to one pound (.4 kilogram), and the umbilical region became prominent and resonant, showing conclusively that the ileo-cæcal valve had been rendered incompetent and that the small intestine was rapidly filling with gas. As soon as the whole abdomen had become distended and tympanitic, the manometer again registered one and one-half pounds (.6 kilogram) of pressure and remained at this figure for some time after further inflation was discontinued by turning the stop-cock."

This and other experiments prove that in a normal condition the resistance of the ileo-cæcal valve to rectal insufflation of hydrogen gas in a healthy adult person is overcome under a pressure of one and one-half to two and one-quarter pounds (.6 to 1.1 kilograms). This amount of pressure is not sufficient to injure the coats of a healthy intestine, and none of the persons experimented on suffered much pain or any other immediate or remote consequences from the insufflation.

As the result of numerous observations, I may state that when the inflation is made slowly and continuously there is less danger of injuring the intestines than when it is made rapidly, or with interruptions. Slow and gradual distension of the cæcum is best adapted to overcome the competency of the ileo-cæcal valve, by gradually stretching the valve until the margins become separated. It is absolutely necessary to relax the abdominal muscles completely by placing the patient fully under the influence of an anæsthetic. A rubber balloon holding from two to four gallons (10 to 20 litres) recommends itself as the most efficient and the safest instrument for making rectal insufflation for therapeutic or diagnostic purposes.

Inflation of the Stomach.

It would be natural to expect that the alimentary canal could be inflated with more ease and with less force by following the direction of the normal peristaltic wave. That this is not the case was abundantly shown by the experiments which I made. These experiments demonstrated conclusively that it is more difficult to inflate the alimentary canal from above downwards, than from below upwards; as in the living animal I succeeded in only one instance in forcing hydrogen gas from mouth to anus, while in others an amount of force sufficient to rupture the peritoneal coat of the stomach, only effected distension of the stomach and upper portion of the intestinal canal. It is evident that great distension of the stomach constitutes an important factor in causing or aggravating intestinal obstruction, as it results in compression of the intra-abdominal organs, which may give rise to impermeability of the intestines, or may aggravate conditions arising from an existing partial obstruction by producing sharp flexions among the distended coils of intestine.

For diagnostic and surgical purposes the stomach can be readily inflated to almost any extent through a stomach tube, and when it becomes necessary to ascertain the presence of a visceral wound of the stomach, this method of inflation should be invariably practiced. Perforations in the posterior wall of the stomach, and in the region of the pyloric orifice, are not easily found by the ordinary methods of examination, while their existence and exact location can be de-

terminated in a few seconds, and with certainty by this simple procedure.

A number of successful operations for gunshot wounds of the stomach has been reported where one bullet produced two perforations; both perforations were discovered and closed by suturing, and the patients recovered. I have knowledge of two cases where one perforation was overlooked and the patients died of peritonitis, which could be traced to the unsutured perforation. In one of these cases a bullet passed through the cardiac extremity of the stomach in an antero-posterior direction. The perforation in the anterior wall was readily found and sutured, and as no other visceral injuries could be found the operation was completed. The patient died of septic peritonitis on the second day. The necropsy revealed a second perforation in the posterior wall of the stomach, and a septic peritonitis which had plainly developed from this source, as the large opening had remained patent, establishing a free communication between the interior of the stomach and the peritoneal cavity.

The second case is reported by Dr. Ohage, of St. Paul, Minn., and is of great interest, as one bullet produced three perforations in the stomach. The bullet passed transversely through the upper part of the abdominal cavity. Abdominal section was made, and two perforations in the stomach, one near the cardiac extremity, the other near the pylorus, were easily found and sutured. The surgeon had every reason to believe that he had sutured all of the perforations. The patient died of septic peritonitis, which, as the post-mortem showed, was caused by an overlooked perforation in the small curvature of the stomach. In both of these cases it would have been easy to discover the undetected perforation, had the stomach been inflated after suturing the perforations, which were found without this diagnostic test.

Hydrogen gas being the lightest body known, non-toxic, non-irritating, and possessing valuable inhibitory antiseptic properties, is the most suitable substance for ballooning the stomach or intestines for diagnostic purposes. Pure hydrogen gas made by using pure zinc and sulphuric acid is non-toxic, and when injected into large serous cavities, as the abdominal and pleural cavities, it produces no local irritation, and is absorbed in a short time. I made a number of experiments on dogs by injecting large quantities of the pure gas into the peritoneal and pleural cavities and into the subcutaneous cellular tissue, and examination of the tissues after the absorption of the gas always showed them to be in a normal condition. Pure hydrogen gas is not only a harmless aseptic substance, but it also possesses at least indirect antiseptic properties. The only pathogenic microbe which is known to be capable of reproducing itself upon a proper nutrient medium in

an atmosphere of hydrogen gas is the bacillus tetani; most pathogenic microbes require a certain amount of oxygen for their growth and reproduction besides the nutrient medium.

Inflation of the peritoneal cavity with hydrogen gas, may prove to be one of the means of preventing septic peritonitis in cases in which the hydrogen gas test is applied in the treatment of gunshot wounds of the stomach and intestines. There is absolutely no danger of causing an explosion in lighting the gas as it escapes from a perforation in the abdominal wall or from the end of a small glass tube. The smallness of the openings in the instances just cited will be a sufficient safeguard against an explosion. As a matter of course, ignition of a large volume of hydrogen gas should be carefully avoided, as such an occurrence would cause an explosion.

(To be continued.)

THE HISTORY OF MICROBIAN PRODUCTS WHICH FAVOR INFECTION.¹

BY PROFESSOR CHARLES BOUCHARD,

OF PARIS, FRANCE.

[Translated for THE JOURNAL.]

1. It is not uncommon to see two different species of microbe invade at the same time an animal organism; the result of this mixed infection may be widely dissimilar. Sometimes the two pathogenic agents develop side by side, without any reciprocal influence upon each other; sometimes the animal will find in one of them an unexpected ally against the other, when it would have succumbed to the one affection, it survives the combined attack of the two; finally the two microbes acting together sometimes overcome an organism which would have resisted successfully either one of the invaders, if attacking alone. It is this last group which is reviewed by the *Gazette*. The writer remarks that it is the result most frequently seen; almost always infection intensifies infection.

It is not necessary that the two microbes both be pathogenic in order that their results become virulent; one of them may be a simple saprophyte. It sometimes happens in fact that two forms neither of which are pathogenic to the animal produce, when associated, death. This has been demonstrated by experiments upon what has been called symptomatic anthrax. The product of this microbe, so virulent for the bovine species, is without action upon the rabbit; inoculation of this animal, either under the skin or into the muscles, produces with this bacillus no result.

Let us now take another microbe, inoffensive of itself, the bacillus prodigiosus, and mingling it with the microbe of charbon symptomatique,

¹ *Gazette Hebdomadaire*, July, 1892.

inject it into the tissue or under the skin; the animal dies and we find at the point of injection a tumor with all the characteristics of anthrax. We here find two microbes, neither of which are pathogenic for the rabbit when injected alone, but which taken together give to one of them a quality which, in relation to this animal, it had not before. The action of the auxiliary microbe, in this case the *bacillus prodigiosus*, depends upon the matters secreted. The result is the same whether we employ the living cultures, the sterilized cultures or simply the glycerole of the cultures, that is what has been called the extract.

This power of one microbe to modify the qualities of another does not belong especially to the *bacillus prodigiosus*; other forms possess analogous properties. This fact has been established by experiment, by injecting the soluble matters of the *staphylococcus aureus*, of the *proteus vulgaris* or of sterilized extracts of putrefying flesh. The facts which have just been stated seem to have a general application as may be demonstrated by experiments with a large number of different forms. For instance, Flugge and Vossokovitch have shown that certain soluble products render possible the development in the organism of microbes non-pathogenic. Grawitz and Bary have found that the inoculation of the *staphylococcus aureus* with the secretions of *bacillus prodigiosus* intensifies the pus-producing power of the former. Recently Monti has rendered virulent the attenuated cultures of the *pneumococcus* and *streptococcus* by injecting at the same time the secretions of other microbial forms, and especially of the *proteus vulgaris*.

These soluble matters which favor infection do not act by altering locally the tissues into which they are introduced; their action is general upon the whole organism. In fact the better method where we wish to diminish or abolish the resistance of an animal to invasion, is to inject the soluble products directly into the blood. In this way we obtain the effect with doses twenty or thirty times less, and much more rapidly than when the injection is made at point of inoculation.

The experimental facts here noted agree perfectly with the results furnished by clinical study. Soluble substances similar to those secreted by the microbes under cultivation are constantly produced in the alimentary canal. M. Bouchard, who has studied with so much care the auto-intoxications dependent upon gastro-intestinal putrefactions, has demonstrated that the putrid poisons absorbed by the portal vein favor a great number of infectious inflammations and render these diseases more likely to terminate in supuration. They, the soluble matters, as distinguished from the forms, when taken into the system produce a culture medium, so to speak, favorable for the development of pyogenic bacteria, and especially of the *staphylococcus aureus*.

It would seem, therefore, that the most efficient method of combating the infections from this microbe, consists in diminishing the intestinal putrefactions. This scientific deduction is in harmony with the well-known clinical fact that one of the best known forms of treatment for this class of troubles, is by the use of the insoluble antiseptics. By this means M. Bouchard has succeeded in arresting promptly the most intense and the most obstinate forms of furuncular disease.

2. If an animal be inoculated with the secretions of certain microbes, as for instance the *bacillus pyocyaneus* or of symptomatic anthrax, and if several days afterwards the same animal be inoculated with the living microbe, the previous inoculation having been sterilized, there will be no infection, the animal survives, it has acquired an immunity, in other words it has been vaccinated.

If instead of allowing several days to elapse between the time of the introduction of the secretions of the microbe and the living bacterium, the two are introduced at the same time, the animal succumbs, in fact death is produced more surely and more rapidly than if the inoculation is made with the living microbe alone. It thus appears that bacterian products have two diametrically opposite effects depending upon the time of their introduction as related to the inoculation of the pathogenic form.

This conclusion clearly follows from the experiments conducted by Bouchard with the *bacillus pyocyaneus*. He says, "I had thought that immunity would be obtained more quickly by injecting *en bloc* the vaccinating matters at the beginning of the malady, than by waiting for this immunity to result from the gradual development of the pathogenic agent. I had imagined that in this manner one would be able to diminish the duration of the disease, and possibly find in these products of bacteria a remedy for the infection itself. Experience has not justified this conjecture. The chemical matters produced by the *bacillus pyocyaneus*, which cut short, or prevent the disease when injected a few days or a few weeks before the inoculation of the *bacillus* itself, if injected at the same time as the living form, that is along with it or nearly at the same time, instead of diminishing the intensity of the infection increases it and hastens the death of the animal."

The result is similar with symptomatic anthrax. The matters secreted by the microbe of this disease confer immunity against inoculation practiced several days afterwards. If introduced into the system at the same time as the microbe, they favor the infection, and even render this bacterium pathogenic to animals ordinarily refractory, as for instance, the rabbit. Considerable quantities of the soluble matters secreted by this

microbe injected into the veins of the rabbit produce no harm; inoculation of the animal with the living microbe is followed by no morbid symptoms. If the injection of the secretions into the veins and of the living microbe into the muscles be practiced at the same time, the animal dies in from twenty-four to forty-eight hours with an enormous tumor, in fact of anthrax.

This fact enables us to understand how it happens that the inoculation of symptomatic anthrax, in the case of the rabbit into the anterior chamber of the eye, and at the same time into the leg results in the formation of a gangrenous tumor in the leg. Even in this animal the anterior chamber furnishes a culture medium for this bacillus; the development of the microbe in the anterior chamber results in the formation of the soluble products which, absorbed into the blood, renders the inoculation into the muscles virulent. In other words the resistance is abolished.

In relation to the facts just stated it is interesting to compare the results obtained by M. Courmont. In carrying out his experiments upon tuberculosis in the cow, he found that the injection of the secretions of the microbe into the tissues in advance of an inoculation with the living bacilli, instead of producing immunity, increased the susceptibility of the animal to the disease. The absorption of these matters or their introduction produced a permanent predisposition.

These facts are almost exactly the opposite of those reported by M. Bouchard. In the case of the bacillus pyocyaneus and of symptomatic charbon the introduction of the soluble matters secreted by these microbes produce immunity; in the case of the tubercular bacillus on the other hand, the introduction of the products of the microbe produces a permanently increased liability to tuberculosis.

3. If it is true experimentally that microbial products favor infection by modifying the general condition of the animal, we ought to be able to find out the nature of this modification. The experiments looking towards the solution of this problem constitute the most curious and interesting portions of the memoir of M. Bouchard. He commences by demonstrating, first, that the soluble products do not favor infection by so changing the quality of the tissues or fluids as to present to the attenuated microbe a culture medium in which it regains its virulence.

Attenuated pneumococcus or streptococcus introduced into sterilized broth of putrefying flesh readily develop, but do not regain their pathogenic qualities. A second hypothesis is suggested, namely, that the soluble matters, that is the secretions, are poisonous to the animal, and therefore diminish its resistance to the infection. "In order that this toxic effect may be produced, notable quantities of the bacterian poison must be introduced," says the author. He continues,

"In a majority of my experiments the quantity introduced was too small to produce any appreciable effect upon the general condition of the animal. In the experiments of Roger, there was no intoxication from the injection of the products of the bacillus prodigiosus, though it intensified the effects of the bacillus of symptomatic anthrax; in the rabbit there is in fact no infection, the animal possessing a natural immunity. Poisoning by bacterial products then do not complicate infection, but infection is rendered possible or intensified by the presence of these substances in consequence of some influence which they exert over the processes by which the organism defends itself ordinarily from microbic invasion.

As has been noted in a former number of the *Gazette*, it is probable, that immunity is the result of multiple conditions; we know, however, with any degree of precision of only two modes of resistance to infection, namely, phagocytosis, and a chemical alteration of the secretions, so that they resist the action of the microbes or destroy them. Experience seems to show that the presence of these products of bacteria do not modify the quality of the blood by which it destroys microbes; at least in animals vaccinated. There remains only the other hypothesis, that is that these products which favor infection do so by arresting the diapedesis, or migration of white corpuscles, and consequently preventing phagocytosis or the envelopment and digestion of the invading agent. Experiments bearing upon this last proposition were conducted as follows: He introduced under the skin of an animal the microbe to be studied enclosed in a small cell between two plates of glass. Of two animals operated upon one is reserved for comparison; the other is now subjected to the inoculation of the secretions of bacteria under the skin or into the veins. In the course of three or four hours the glass preparations are withdrawn and examined with the microscope, the number of migratory cells, the number of the microbes enclosed in them, and the number of free microbes in the two cells are compared. The results of these experiments have been extremely definite. The soluble products have arrested diapedesis, and their action has been especially marked when injected into the veins. It will be remembered that this mode of introducing the secretions of microbes had already been found to have the most prompt and certain effect in intensifying infection. If for instance we place under the skin of a rabbit a few drops of a culture of the bacillus pyocyaneus contained in a cellule, such as above indicated, we shall find in the course of three or four hours that there has taken place a very active migration of the leucocytes, and that the destruction of the bacilli is rapidly progressing. But if, repeating the same experiment, we inject simultaneously into the vein ten cubic centimetres of the

soluble products of the same microbe the diapedesis is not produced, there will be found here and there only a few leucocytes. The results are similar with the bacillus of anthrax and with the staphylococcus aureus; the sortie of the leucocytes which these microbes normally stimulates, is prevented by the introduction of the microbial secretions effected in artificial cultures. We have here the results reached when an animal is inoculated with the living form, and at the same time receives into the veins the formless product, in other words the secretion of the same bacterium. We have also seen that the soluble matters of one microbe introduced into the system favors infection by another form. M. Bouchard has demonstrated that the secretions of one species are capable of arresting or preventing the diapedesis which another species tends to excite. The soluble products of the bacillus pyocyaneus, for instance, prevents the leucocytes from attacking the bacillus subtilis, the attenuated bacillus of anthrax in the rabbit, the virulent anthrax in the dog, etc. In all these procedures there had been previous experiments with water, and with simple bouillon, and it becomes therefore certain that the results were dependent upon the relation of the living forms and the non-living product. In pursuing still further these experimental researches, we are able to gain some information as to the mechanism, by which the unformed products of microbes prevent the migration of leucocytes.

Diapedesis is in relation to the state of the blood-vessels; it is very active when the arteries are dilated; it is diminished or arrested when the arteries are contracted. It has been demonstrated during studies upon the streptococcus of erysipelas that section of portions of the sympathetic which are distributed to the point of inoculation, notably increases the migration of leucocytes at the seat of the operation. Cellules, such as described above, were placed under the skin of each ear; on one side the superior cervical ganglion was destroyed; at the end of four hours, it was found that the leucocytes upon the side from which the nerve had been removed were very much more numerous, in fact thirty to forty times more numerous than upon the side having the nerve intact. Vascular constriction has an effect exactly the reverse, diminishing diapedesis, and it is by producing this vascular constriction that the soluble products of microbes prevent the migration of the round cells and consequently diminish the resistance of the animal to infection. The invaders are allowed to develop, while the besieged are prevented from making a sortie for the purpose of the destruction of the enemy.

MM. Charrin and Gamalëia have made some curious experiments bearing upon this problem. By rubbing the ear of two rabbits with croton oil, and then injecting into one of them the solu-

ble products of the bacillus pyocyaneus, a marked difference was observed in the two animals; in the one not treated with the microbial product there were the usual results of the agent, vascular dilatation and dermatitis with swelling; the other, treated with the bacterian secretion, maintained its normal appearance and condition.

This action of microbial products is transient; at the end of a few hours elimination has been accomplished and the vessels again readily dilate. In this case the morbid predisposition is of short duration; if a certain time elapses between the introduction of the solution and the inoculation with the living microbe, twenty-four hours for instance, it will be found that the resistance of the animal has been restored to its normal condition. In view of these facts it is pertinent to ask, how does the injection of the solution favor the infection? If the elimination is accomplished in so short a time, diapedesis ought to take place and the bacteria should be destroyed. It may be said in answer, that while the soluble matters hold in check the migration of the leucocytes the microbe has had time to develop and to produce its own secretions, so that when the elimination of the introduced product has been accomplished, the contraction of the vessels is maintained by the new secretions formed in the tissues or fluids, while the living form continues the work of invasion and destruction.

It is easy to understand how complex fluids such as those used in these experiments, may produce quite different effects. Matters which favor infection act promptly but are only transient, elimination rapidly taking place; substances which give immunity require a considerable time to produce their effects, but accomplish a permanent modification of the fluids or tissues. These new facts, established by the experiments of M. Bouchard, serve to explain many obscure points in the history of infectious diseases.

The soluble matters of which the effects have been so thoroughly studied by the experimenter, commence to be formed as soon as the microbe begins to develop; they are necessarily related to its normal vegetation. If these matters do not possess the property of contracting the vessels, diapedesis will take place, the leucocytes will come to devour the invading agent, and in this manner prevent general infection. If the substances secreted on the other hand do produce contraction of the walls of the vessels, the escape of leucocytes is prevented, the microbes develop, multiply and are disseminated; they are pathogenic precisely because they produce a secretion which has this action upon the blood-vessels, in other words a poison to vascular walls.

It would appear that natural immunity must result, in part at least, from the fact that the blood-vessels of the refractory animal are not responsive to the microbial products, that in the

presence of these substances the vessels retain their normal properties and diapedesis in the presence of living bacteria takes place, and consequently the destruction of the invader is accomplished. Is the process the same in the case of acquired immunity, that is to say, the resistance conferred by vaccination?

In endeavoring to answer this question we find a new element. Introduced into an organism modified by vaccination, the bacterium does not develop well; the blood and tissues do not furnish a good culture medium; or perhaps we should say the blood and tissues of a vaccinated subject are themselves destructive to bacteria. As a result, there is produced by the invading microbe only a minimum quantity of soluble products, and it is unable to protect itself from the army of migratory cells. These come to attack a form already enfeebled by a bad soil and unhealthy surroundings, and as a result the foreign agent is easily overcome and destroyed. The animal resists infection, not because the bacterian products have not the power to act upon the vessels, but because the infecting form is not able to produce its normal quantity of these products.

We have here briefly analyzed the experiments of M. Bouchard, which furnish, in part at least, an explanation of the phenomena of susceptibility—of natural immunity—and of acquired immunity, that is by vaccination. Without doubt, there is much yet to be done before these complicated and difficult problems shall be entirely solved; problems which up to the time of these studies seemed to defy all explanation. Is it not very much to have revealed to us in part the mechanism of these processes, and by positive and well-established facts, to have established a general law which accords so well with clinical observations and the results of experiments?

MEDICAL PROGRESS.

INTESTINAL ANTISEPSIS.—(*Wiener medicin. Presse*, May 25, 1890.) To render innocuous the pathogenic organisms of the intestines, attempts have been made with drugs administered by the mouth or rectum. By the first method only those remedies are indicated that will pass through the stomach unchanged. Calomel is an agent of this class, but while serviceable in simple fermentative conditions, it is impracticable in infection of long duration. BOUCHARD used large quantities (100 grams daily) of pulverized carbon in typhoid fever; naphthalin, iodoform and salicylate of bismuth have also been recommended. These agents possess a certain antiseptic influence on the contents of the alimentary canal, but on the intestinal wall their action is

nil, which fact receives confirmation in the treatment of typhoid fever. The intestinal antiseptics require heroic administration, and aside from toxicity, they are absorbed in the stomach and altered in their chemical constitution before attaining the desired site. For this reason CANTANI considers their exhibition *per rectum* as the proper method. Repeated experimental investigations show that intestinal irrigations may pass the valve of Baubin, and reach the upper part of the small intestines. The advantages arising from rectal injections are: the use of large doses, direct action and the avoidance of gastric irritation. There are also other advantages attending this method. The use of cold water reduces the temperature; whereas hot water is of benefit in cholera. Thorough lavage of the intestines is also attained and a certain quantity of bacteria and ptomaines are mechanically removed. Cantani considers carbolic acid and tannic acid to be the best intestinal antiseptics. Corrosive sublimate exerts no antiseptic action, owing to its union with albumen. Tannic acid fulfils a double indication for rational intestinal antiseptics; it paralyzes the vegetative activity of the bacteria and renders the ptomaines innocuous. The value of tannic acid in effecting the objects already mentioned has received abundant clinical proof in the treatment of intestinal catarrh accompanied with fermentation and true specific dysentery. If the injections of tannic acid prove too irritating, then the addition to the injection of about 1 litre of oil is of advantage. In typhoid fever these injections are of great value; meteorism and diarrhoea disappear and the entire course of the disease is favorably influenced. In the incipency of this disease, it is possible by injections of tannic acid, to abort it. Cantani has also secured an abortive action in the beginning of typhoid with injections containing 1 gram of the hydrochlorate of quinine, and from 10 to 50 grams of pure carbolic acid in two litres of cold water.—*Occidental Medical Times*.

INDUCTION OF PREMATURE LABOR.—In these days when abdominal section is so freely practiced obstetricians of authority tend to throw discredit upon the induction of premature labor and craniotomy, and so advocate Cæsarean section. PROF. AHLFELD, however, has lately issued an important monograph on 118 cases of induction of labor, performed by himself and his assistants between 1871 and 1890, at Leipzig, Glessen, and Marburg. In 111 of these cases labor was induced on account of deformed pelvis, in the remaining 7 it was undertaken because of some general illness. Only one mother appears to have died from the direct results of the proceeding in question, she succumbed to damage of the soft parts caused by the passage of a large head

through an atypical pelvis. Four mothers died from diseases which either followed accidentally or were those for which labor had been induced (convulsions, tuberculosis, heart disease), 75 mothers recovered without rise of temperature. One hundred and twenty-one children were thus delivered (there being three cases of twins in the 118 labors). Of these 19 were stillborn, 18 died in the course of the first day, 9 died before the mother was discharged, and 75 left the hospital, etc., alive. Out of 99 carefully registered contracted pelvis cases (including 2 twin labors) 86 children were born alive, 15 stillborn, and 61 survived. On the other hand, in 6 cases of Cæsarean section performed in Professor Ahlfeld's wards, 2 mothers and 1 child died. Space forbids any notice of the author's statistics as to the extent of contraction in the pelves. The monograph deserves close study. Professor Ahlfeld insists that the introduction of a flexible bougie into the uterus without rupture of the membranes is by far the best method, but the pains are apt to be slow, so that accessory means are sometimes required. There can be no doubt that the majority of practical obstetricians are more likely to attain good results by inducing labor than by performing Cæsarean section or Porro's operation.—*British Medical Journal*.

ALBUMINURIA IN PREGNANCY AND LABOR.—LEOPOLD MEYER (*Zeitsch. f. Geb. u. Gynäk.*, xvi, 2) examined the urine of 1,127 pregnant women in the pursuit of this study, and of 1,138 women in labor. The urine examined was in all cases removed by the catheter. The test for albumen was by means of boiling and the addition of nitric acid. Quantitative analysis was not made. In all cases where even a trace of albumen was obtained, the urine was placed in a cone-shaped vessel and the sediment examined by the microscope.

Albuminuria in Pregnancy.—Albumen and albuminuria comprise many things. We should keep in view serumalbuminuria, globulinuria, peptonuria, hemi-albuminuria, etc., but to the clinician this differentiation is not feasible. The latter must call in aid the microscope, and the greatest weight is to be attached to the presence of urinary casts. Where the latter exist, the strong probability is that the albuminuria is of renal origin, which is to be separated from the other form of albuminuria, which, in a large number of cases, is evidently not renal. The presence of the so-called renal epithelial cells is of great moment. Of the 1,127 pregnant women whose urine was examined, the latter was found free from albumen in 93.3 per cent.; it contained "doubtful" albumen without casts in 1 per cent.; albumen without casts, 3.2 per cent.; albumen with "doubtful" casts, 0.3 per cent.; albumen with casts, 1.9 per cent.; together with two cases,

subjects of gonorrhœa, which showed albumen without casts, and one case with renal fistula, which showed albumen and casts. Deducting the last three, albumen was found beyond doubt in sixty-one cases, or 5.4 per cent. These figures, for themselves, are of little interest; the important thing is to investigate the conditions which dispose to albuminuria, and its significance for mother and foetus. As regards the former, little is to be learned from material gathered in hospitals, the modes of life of the patients and their surroundings not being accessible to interpretation. As regards the symptoms during pregnancy, albuminuria without casts very seldom shows any symptoms. When they exist, they generally depend upon cystitis or pyelitis. Albuminuria with casts in general also shows no symptoms.

Albuminuria during Labor.—The author investigated the urine of 1,138 non-selected cases, and found urine without albumen in 75 per cent., with albumen in 25 per cent. The albuminuria may increase during the progress of labor, or may be absent at one time, to appear later on. The albuminuria found during labor unquestionably begins during the parturient act.

Course of Albuminuria during Pregnancy and Labor.—The rapid disappearance of albuminuria—as well as that accompanied by eclampsia—on the cessation of labor, led to an unusually favorable prognosis for the affection; later investigations indicated a certain reservation, as it was found that the trouble was prone to become chronic. From his researches the author concludes that the albuminuria without casts appearing during labor rapidly disappears on its termination. It is possible that these patients have an exaggerated disposition to catheter cystitis, and especially those in whom albuminuria existed during pregnancy; in these also the affection may terminate spontaneously, but disappears more slowly than in the first-mentioned cases, and sometimes persists for some time. The more considerable the albuminuria during labor, the longer time was required for its subsidence; but the period of recovery is not dependent upon the quantity of the casts. As regards the termination of cases of albuminuria with casts observed during pregnancy, the percentage of uncured was a large one. The prognosis in this affection must be regarded as very doubtful as regards recovery; albuminuria with casts appearing during labor, in most cases terminates after birth, generally four days post-partum; a small proportion remains uncured.

The Relationship between Albuminuria and the Vitality of the Fetus, and the Alterations in the Placenta.—In women with albuminuria relatively more frequent premature labors took place, showing especially in cases in which the quantity of the albuminuria was considerable; but the observa-

tions of the author show no particular causative effects in albuminuria as regards the death of the foetus. The alterations in the placenta in general comprise a premature separation of the organ, with the appearance of so-called white infarcts, which have been associated with the renal affection in the mother. Of the 1,344 placentae investigated, white infarcts as well as evidences of premature separation were found in but twenty-six. While it is evident that a certain relationship exists between renal affections and changes in the placenta, it is not of such indubitable and conspicuous a character as is claimed by some.—*Am. Jour. of Obstetrics.*

THE BACTERICIDE EFFECTS OF BLOOD.—PROF. Y. FODER, who has been carrying on a number of experiments on the bactericide effect of blood, reports some of his results. He finds that the bacilli of anthrax survive in larger numbers in defibrinated arterial than in venous blood, and in fresh blood more than that which had been exposed to the air for several hours. Blood allowed to stand for 16 hours showed no bactericide effect at all. On one occasion freezing did not affect this property, but on several others it destroyed it; as also happened when it had been warmed to 50°C., though a lower temperature (38° to 40°C.) increased the bactericide properties. Prof. Foder also examined the effect of various drugs, injected into the stomach, upon the bactericide properties of the circulating blood. Dilute hydrochloric acid, tartaric acid (3 to 5 gm.) lactate of quinine (0.6 to 1 gm.) diminished these properties, while muriate of sodium (3 to 5 gm.) rather augmented it. Alkalies invariably increased it. The decrease in the number of the anthrax bacilli inoculated into the blood was as follows: Carbonate of ammonia (from 2 to 5 gm.): before the injection, 27 per cent.; after the injection 38 per cent. Phosphate of sodium (from 2 to 5 gm.): before the injection, 32 per cent.; after the injection, 60 per cent. Carbonate of sodium (from 2 to 5 gm.): before the injection, 23 per cent.; after the injection, 76 per cent. Carbonate of potassium (from 2 to 5 gm.): before the injection, 48 per cent.; after the injection, 77 per cent. Carbonate of sodium from 2 to 5 gm.): before the injection, 29 per cent.; after the injection, 83 per cent. He injected into the stomachs of rabbits, subcutaneously, from 1 to 5 gm. of bicarbonate of sodium, and made, either simultaneously or after from 5 to 24 hours, inoculations with anthrax. The control rabbits which had not been protected by the sodium salt, succumbed, and numerous bacilli were found in the blood and in the spleen. Out of 19 rabbits protected, 3 (15.6 per cent.) died. 9 (47 per cent.) of the rabbits died, and no bacilli, or a very small number of the bacilli, were found in the blood; these rabbits, however, survived the experiments

for a considerable time. 7 animals (37 per cent.) resisted infection, and this was also occasionally observed in subsequent experiments. Dr. S. Gerlőczy had been induced by these experiments to try the bicarbonate of sodium in typhoid at the Rochus Hospital, and had observed a favorable influence from it. Dr. O. Petrick alluded to the difficulty of counting the bacteria in the blood after inoculations; and to the fact that in estimating a decrease or increase, it should be remembered that many of the bacteria were retained in the capillaries of the liver and spleen, and in the marrow of the bones, being, in fact, filtered out. Ponfick had stated that the white corpuscles of the spleen were able to take up granules of cinabar, and that these became localized; but the granules could also be found in the capillaries of the marrow after extirpation of the spleen. Similar conditions were observed in the pigment granules in the blood in cases of intermittent fever, which disappeared after the attack. Prof. Arenstein also stated that he had found them in great numbers, after death, in the capillaries of the liver and spleen, and in the marrow. Dr. Y. Donath said that the bactericide property of the organism was a medical postulate, when we considered how many bacteria entered the body through the lungs, or the surfaces of wounds. Prof. Foder deserved credit for demonstrating that this effect was to be ascribed to the influence of the blood. He did not think that this was due to the alkalies, but rather to the increased power of oxidation that they produced. Thus we knew that albuminoid bodies are more readily oxidized by ozone in an alkaline solution. Under the title of disinfectant, in its widest sense, we understand a remedy capable of killing microbes, though these remedies might differ widely in their chemical constitution. A drug, as common salt, might be inert in a diluted state, and most active when concentrated. Prof. Foder's experience supported the theory that the oxygen of the blood had a bactericide effect, as he had found that arterial was much more active than venous blood.—*Vienna Cor., Occidental Medical Times.*

VOMITING OF PREGNANCY.—When this symptom proves absolutely intractable, and it reaches such a degree as to endanger the life of the patient, PUGLIATTI (*Morgagni, 1889*) recommends the induction of abortion. For this purpose he advises the introduction of bougies having a thickness 6–10 mm., extending 5 or 6 cm. into the cavity of the uterus. After 2 or 5 hours another and somewhat larger (2–3 mm.) bougie is inserted, this is followed by a third, which is allowed to remain several hours or until distinct contractions of the uterus are observed. The author claims that this method is free from danger, and with it the foetal membranes are preserved.

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DISCUSSION ON HYPNOTISM.

At the late meeting of the British Medical Association this subject attracted unusual attention in the Section of Psychological Medicine. DR. NORMAN KERR read a paper entitled, "Should Hypnotism have a recognized place in Therapeutics?" He fully accepted all the hypnotic phenomena as facts, but in hypnosis he recognized only disordered cerebral states, and abnormal psychical conditions, with exaltation of receptivity and energy.

He denied that it had any therapeutic value, claiming that the after effect was a disturbance of mental balance, a dissipation of nerve energy and nerve exhaustion. Frequent repetition was apt to cause deterioration of brain and nerve function, intellectual decadence and moral perversion. Hypnosis was a departure from health and a diseased state. It was also a true neurosis, embracing the lethargic, cataleptic, and somnambulist states. Thus, if a disease was cured by hypnotism, this would be only by substituting another disease. Though suffering is often temporarily lessened by hypnotic suggestion, the underlying disease was not necessarily cured. Any one may obtain relief from pain by becoming drunk, but this respite is dearly bought, as drunkenness always aggravated the diseased condition. By hypnotic anæsthesia, though evanescent oblivion might be secured, the lethal power of the morbid disorder, of which the pain was a merciful if unwelcome messenger, was in most cases increased. The alleged benefits from hypnotism were claimed to be cures of all forms of nerve dis-

orders. Dr. Kerr believed that all such cases were intensified by this remedy. He urged that this therapeutic measure was dangerous, and should not be employed in any way. That it always favored states of mental unsoundness, and tendencies to develop morbid nervous susceptibilities, and unstable brains, which in these days of nerve exhaustion was especially dangerous.

DR. KINGSBURY replied to Dr. Kerr's attack on hypnotism, and asserted that no remedy of modern times promised so much in the treatment of nerve disease. He gave many instances of the relief of insomnia, neuralgia, and other diseases, and final cure by the hypnotic suggestions, and declared in the face of the facts (which were beyond all dispute), it was folly to condemn this remedy. In the discussion several prominent alienists expressed themselves guardedly, but in favor of a more careful study and experiment with hypnotism.

Dr. Kerr's paper has been freely discussed, and evidently is supported by many of the leading medical authorities. On the other hand, the *French school* of investigators, including Drs. CHARCOT, LUYs, and the *Nancy school* of medical teachers, and many very able students of mental disease, declare that with hypnotism it is possible to relieve and cure a great many of the neurotic diseases that are now considered incurable. It is evident that the phenomenon of hypnotism has passed beyond the region of quackery, and is now a matter of medical and scientific investigation. Already there are three or four works published, describing what is known up to the present, of hypnotism and its value in medicine. In a late number of the English *Fortnightly Review*, Dr. LUYs, a distinguished authority, describes at some length a series of hypnotic phenomena of the most marvelous character. The impression on the reader is that if this is real and practical, we may expect from hypnotism the most valuable remedy and therapeutic measure, that has been found in the century.

While Dr. Kerr's protest and warning against the use of hypnotism is timely, and will do good in checking the contagious enthusiasm of many, still there is a range of facts, and a possibility of practical application, that cannot be ignored or put aside as unworthy of study.

It would appear that the American physician might find a fertile field for the practical study of

hypnotism in the rush and revolution of events that so profoundly impress the brain and nervous system, in this country. We commend this new field of investigation to our readers, assuring them that some of the most acute medical students of the world have taken up this topic, and an almost boundless realm of possibilities, bearing on the power of the mind over the body, appear in the medical horizon in this direction.

THE PARAMOUNT QUESTION.

The subject of preliminary education preparatory to the study of medicine holds a prominent place in the thoughts of the profession, at the present hour, both in this country and in Europe. It is not the question of its importance, for that hardly admits of argument, but rather as to what the accepted standard of requirements shall be. So too, in our medical colleges there is a general demand for lengthened terms of study, and for more critical examinations. This is well, and the fact needs no restatement, that every diploma should carry with it the guarantee of thorough preliminary and medical training. But it seems to us that another and a paramount question lies beyond these: the question that relates to the after-training of the man who has received his degree and entered upon his professional career. Coming to the fulfilment of a sacred obligation he is bound to render to his patient the most perfect service of which he is capable; a service which justice and humanity alike demand. The fulfilment of this obligation is partly conditioned upon his previous training, but more and more as the years go on, it depends upon his *after-development*. And here is the signal danger: that men, especially if not impelled by the stimulus of necessity, will lapse from active exertion, and rest more and more contented, with imperfect methods of observation, and spend the best of their years in a sort of rutty, routine practice. Humanity has claims upon our profession for better service than such men are apt to render, and the agency that may lift them from such low estate would be its greatest benefaction. Some men are a stimulus unto themselves; they grow in knowledge and in wisdom as they grow in years, until their attainments become their crowning glory. Un-

fortunately for the sick man and for a noble profession such men are exceptional.

At this juncture the added stimulus that most men seem to need is that of friction, mind with mind. They need to measure themselves with other men, and thus to discover their own strong points and their weaknesses as well, and herein lies the value of the medical organization which, as best it may, shall supplement the college work. Such organizations have been exceedingly helpful in the past, and they will be in the future. In most instances they are sustained by the personal efforts of the few, and have within them the element of instability.

What we seem to need now as much as we need medical colleges, is, a perfected plan of medical organization which shall be acceptable to the members of the profession—which shall command their allegiance, and which shall be to them in turn an inspiration to *continuous* work. Such development cannot be the work of a day, nor of a year—it must be one of time, and it should bear the impress of our wisest counsellors. With this purpose in view, at the meeting in Nashville the Editor of the *Lancet-Clinic* offered a resolution that a committee of nine be appointed to report upon the propriety of modifying the present working plans of the Association. We think the resolution was timely and its purpose wise. A well-selected committee can render a valuable service by submitting a carefully prepared report which shall cover the whole ground, advising as to whether our present plans are best, or whether others would serve us better.

It would surely be presumption on our part to forestall the work of that committee; but it does seem evident that a representative plan by which delegates of local societies shall constitute State organizations, and that the representatives of these shall form the executive body of a National Medical Union, would furnish an enduring basis for a permanent National organization. Every member of every local organization could thus be a member of the National Association, and be there represented.

It was this representative feature, so in accord with the genius of American institutions, which led us to refer in a recent article to the constitution of the Medical Society of the State of New York.

In making that allusion, it is hardly necessary

to say that we simply had reference to the working plan of that society. The question of code, ethics or affiliation was not in our mind. We neither intended to bestow a passing compliment nor by implication to pass censure upon the State Association—now, perhaps, the most vigorous and successful organization in this country;—and of itself so strong that it can be alike indifferent to either praise or criticism. What we desire is this—to ensure for every legitimate medical practitioner a local medical home, where with his fellows he may do his best work; that the representative men of these homes shall constitute strong State societies, and that in the union of all our State societies we may develop a National medical association which may number a membership from twenty thousands upwards, including each member of every local organization. Let the annual fee for membership be placed at five dollars: one for the local society, one for the State—and three for the National organization—the latter amount to be a subscription for *THE JOURNAL*. Then will the purpose of the Resolution offered at Nashville by Dr. Comegys, of Ohio, be fulfilled, and *THE JOURNAL* find its place at the fireside of every appreciative physician in the land.

DISEASES OF BRITISH COLUMBIA.

A letter to the *British Medical Journal* from British Columbia throws some light upon the diseases of the Indians in that remote region. Speaking first of the theory that leprosy has its origin in a fish-diet, the writer avers that this disease is wholly unknown in that province, although the chief food of its natives is of fish, all the year 'round. The fish that are prepared for winter consumption are roughly and incompletely cured, and become highly disagreeable in odor, partially decayed, in fact, in many cases. If fish-food can produce leprosy the Indians of the Fraser River country should be decimated by that disease. Salmon die by the thousands in that river, and along its tributaries, and they are freely eaten, both dead and dying, even when the river itself is tainted with odor of decaying fish. Malarial fever is unknown in that country, although governed by many of the conditions that seem to make it prevalent in other parts of the globe. The low-lying lands along the numerous rivers are periodically flooded and satur-

ated by the down-flow of water from the melting of snow in the three great mountain ranges. Meadows and prairies are converted into lakes, and while the floods are subsiding, and afterwards, thick mists arise, morning and evening, for months. And yet these regions are not regarded as being unhealthful or malarious. Another scourge of mankind, hydrophobia, has not reached that distant point. If a superabundance of ownerless, wild and neglected dogs could produce rabies that province should suffer acutely. The camps of the Indians are well-nigh surrounded by wretched, half-starved and mongrel canines; and in Vancouver the plague of ownerless dogs was so great that active measures had to be put in force for their destruction. Diphtheria, however, has found its way into that beautiful country, across the barrier of the Rockies, and rages with virulence among the young. Doubtless the first case was imported; and it would so be found if due inquiries were to be made. Once imported, the absence of drainage has enabled the disease to flourish and become endemic. The epidemic of influenza, which last winter visited the Pacific coast, extended into the interior also, and produced sickness and many deaths among the tribes in the heart of the country. Superstition and witchcraft had full sway among the ignorant natives in their efforts to drive out the demoniac causes of their strange visitation, and in the case of one of the tribes, a little boy of 7 years, the nephew of the chief of that tribe was fixed upon by the medicine-man as the responsible cause for the epidemic and its mortality. It is alleged that the child was put to the torture and then condemned to death by burning at the stake. This last sentence was not carried out, for the lad was rescued, at almost the last moment, by a courageous white miner, who carried off the boy in the face of the opposition of nearly the whole village.

FIDUCIARY RESPONSIBILITY.

It is a matter of no ordinary moment that while this has been justly termed the age of getting, yet each year the fact is more and more emphasized that it is also the age of giving. If with the power to accumulate there is joined a spirit of benevolence, and a wise discrimination in its exercise, then may men be earnestly con-

gratulated for the noble services they may render to their fellows. If the record could be accurately stated it would be found that by far the larger amounts contributed are the aggregates of pittances given by the masses, and which go so largely to the supply of daily needs. So, too, in matters of collections for all benevolent and religious purposes, the yearly contributions of those with moderate means amount to many millions. In connection with the marvelous developments of wealth which have been made in America within the last half century, not a few, but, rather a multitude of business men have come into the possession of great wealth, and it is a notable fact that in great numbers of instances a princely generosity has been manifested in its bestowment. Hundreds of millions of dollars are thus represented in churches, universities, seminaries, colleges, parks, fountains, galleries of art, and especially in charitable institutions designed for the cure or alleviation of suffering—in homes for invalids, and in hospitals everywhere; and as the years go by this spirit of benevolence is being rapidly developed. Capital seems intent upon giving back to labor its full reward, and more. The outlook in the direction of endowments and bequests was never so hopeful as it is to-day.

But this very fact brings with it its word of caution. There must be no betrayal of trusts. Even of more value than the noble impulse that prompts the giving, is that other priceless possession of *fidelity*.

This matter of wisely handling large amounts of capital in the care and conduct of hospitals and charitable institutions is one that often bears close relation to the medical men in charge. They, too, are often responsible in measure for the direction in which charities shall be bestowed. On the part of these and upon all men charged with fiduciary trusts there rests a grave responsibility.

If the purposes of donors in the future, as they have been mainly in the past, shall be faithfully executed, there hardly seems a limit to the bestowments that will be made for worthy objects; but, if the time shall come when even a few trusted ones shall prove recreant, then, and that suddenly, will the streams run dry and the fountains of benevolence cease to flow. The giving is of more account than the getting, but most of all is the service of faithful stewardship.

MICROBIAN PRODUCTS WHICH FAVOR INFECTION.

The importance attached to matters secreted by pathogenic microbes is constantly on the increase. As a result pathologists now attribute to the secretions the greater portion of the effects which minute organisms produce.

From a purely physiological standpoint microbial products may be divided into the three following groups: 1. Those which exert upon the economy a poisonous influence, and upon which the virulent properties of the microbe depends. 2. Those possessing a vaccinating power; they confer immunity not by accumulating in the tissues but by passing through them and modifying the dynamic power of cells and the chemical qualities of the fluids and tissues. Finally, a third group, which, though themselves non-pathogenic, diminish the power of resistance of the organism to the attacks of other pathogenic varieties; and even render forms non-pathogenic virulent.

The effects upon the system of the different products secreted by these microscopic forms have been very thoroughly studied by PROF. CHARLES BOUCHARD of Paris, and the results reached have been recently published in a memoir entitled "Action des Produits Secrétés par les Microbes Pathogenes. Paris, 1890." From the *Gazette Hebdomadaire* we translate a review of that portion of the work of Prof. Bouchard relating to the "History of Microbian Products," which diminish the resistance of the organism to the pathogenic agents and thus favor the development of infectious diseases.

EDITORIAL NOTES.

SEVEN HUNDRED PAPERS.—This is the reported number of papers submitted at the Berlin Congress. The paper presented by Professor Bouchard, of Paris, required two hours for its delivery. At that rate, it is difficult to conceive how justice could be done to each contributor, or at what dates discussions would be in order.

THE ANNUAL MEETING OF THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION.—We desire again to refer to the annual meeting of this Association, which will convene Oct. 8 at Louisville, and continue in session for three days. The city of Louisville can afford ample accommodations for

any number of guests, and the profession of that city, whatsoever they undertake, are never found wanting. We not only anticipate a large attendance, but also the presentation of an unusual number of valuable papers. Pleasure and profit will conspire to render this meeting a notable success.

THE AMERICAN RHINOLOGICAL ASSOCIATION will hold its eighth annual session at Louisville, Ky., Oct. 6, 7, 8. All leading subjects relating to nasal and naso-pharyngeal diseases will be opened for discussion by a leading fellow of the Association. The Secretary, Dr. R. S. Knode, Omaha, Nebraska, will furnish any information to physicians desiring to become members. As the date of the first session is three days earlier than that of the meeting of the Mississippi Valley Medical Association it will be feasible, for those who so desire, to attend both Societies, as the meetings of both are to be held in Louisville.

ONTARIO MEDICAL ASSOCIATION.—We have recently received a copy of the manual of this prosperous Association. It is a finely printed pamphlet of twenty-four pages, with revised and amended contents down to June, 1889. It gives the membership and officers to the date of the last Convention, also the Constitution, By-Laws and elaborate Code of Ethics, which latter is essentially the same as that of the American Medical Association. It is a most attractive and serviceable little handbook.

AMERICAN PUBLIC HEALTH ASSOCIATION.—The next meeting will be held at Charleston, S. C. It will convene December 16. The sessions will be continued for four days. Among the topics announced are those of sanitary house construction in its various details, the disposal of sewerage, isolation of hospitals for infectious and contagious diseases, maritime sanitation at ports of entry, the restriction of tuberculosis, etc. We anticipate the presentation of a valuable series of papers in connection with this meeting.

DR. ROBERT STEPHENSON, of Adrian, Mich., died August 11, at Berlin, whither he had gone as a delegate to the International Congress. As his death was sudden, the police officials believed it to be expedient to investigate its causes. A post-mortem was held, and the official verdict was that Dr. Stephenson died from cardiac

syncope, superinduced by an overdose of morphia, taken accidentally, as is believed, and not at all with suicidal intent.

THE MICROBE IN LONDON.—Our latest advices are to the effect that cholera is steadily making advances in Russia, in Spain, and along the borders of the Red and Mediterranean Seas; but the notable fact of the week, which seemingly is well authenticated, is that of the appearance of a single case of cholera in London.

Those who are not committed to the view of specific contagion will enquire with emphasis if it be not true, that sporadic cases, as a rule, precede any local development of an epidemic of this disease—cases in which seemingly no means of transmission was possible. In this instance we sincerely hope that no effort will be spared in determining all the circumstances connected with its development. Was there any possible means of communication of this patient with others in any of the infested districts? Do the physicians in attendance unite in pronouncing this to be a typical case of Asiatic cholera? Is there any evidence that the disease is being communicated to other persons in immediate contact with the patient? Facts in such a case as this are valuable, and a critical observance of them on the part of the London physicians will be of special service to the profession.

THE CARE OF THE INSANE IN THE STATE OF NEW YORK.—The redistricting of the State to conform to the new act providing for the care of the county insane, by the State asylums, will be begun in September. The Board, appointed for that purpose, will make a temporary apportionment, subject to future alterations as occasion may dictate. When the division of the State into districts shall have been made, the charge at all hospitals will be the same to the counties for the same class of patients. There is an informal understanding that when the State shall have completed its provisions so as to accommodate all the insane then in the county almshouses, the amounts to be charged to the counties, respectively, will be \$2.50 per week for the class of patients that have been under treatment for three or four years, while for the class under treatment for less periods, the charge will be \$4.00 per week.

DOMESTIC CORRESPONDENCE.

LETTER FROM NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Opening of the new Croton Aqueduct—The Election at Auburn—Important recommendation of the State Commission in Lunacy—What the Vanderbilts are doing for the Workingmen of New York—The Rev. Chas. L. Brace and the Children's Aid Society of New York.

In the last letter a brief reference was made to the opening of the new Croton aqueduct; but this is a matter of so much importance to the health and prosperity of the community, that a more extended notice of this great undertaking may be of interest. The opening took place on the 15th of July, and was without public ceremonies, though the Mayor and other city officials were invited to be present when the water was first turned on at the big reservoir in Central Park. This is in marked contrast with the opening of the old Croton aqueduct, which was made the occasion of a general celebration, with elaborate exercises and marked demonstrations of rejoicing everywhere in the community.

The new aqueduct is unquestionably the greatest engineering work of the kind ever undertaken and successfully carried out. Through nearly all its course from Croton Lake to the gate-house at 135th street, it is a tunnel through solid rock, sometimes more than 200 feet below the surface of the ground; and, instead of crossing the Harlem River by the simple device of iron pipes carried on a bridge of masonry, the tunnel takes the form of an inverted syphon below the river's bed, going to a depth of 300 feet to find secure rock to withstand the tremendous pressure. The aqueduct, as has been stated in *THE JOURNAL*, is capable of delivering two hundred and fifty million gallons of water per day, or nearly three times as much as the old one; while its cost has been less than twice as much, without taking into account the additional storage reservoirs that will be required to afford a steady supply of water. This is not only by all odds the largest aqueduct, but it is also the longest continuous tunnel, in the world; and when the dams and reservoirs subsidiary to its full and permanent operation are completed, the system of waterworks will be the most extensive and costly ever constructed. It was, therefore, altogether appropriate that, on the day of the opening, the Aqueduct Commissioners should adopt the following resolution:

"Resolved, That as our citizens enjoy to-day, by the utilization of the new aqueduct for the first time, the benefits of an undertaking which stands an unparalleled monument to engineering skill, and which in every way contributes to our city's health and welfare, the members of this Commission warmly congratulate the public of the City of New York upon the virtual fruition of an enterprise of such incalculable magnitude and merit."

height and are divided by party walls into thirteen separate sections, two of the blocks have shops on the ground floor, and the remainder are entirely devoted to dwellings. Each dwelling has a separate entrance from the common staircase and is a tenement in itself. There are altogether 271 tenements and a superintendent's house. The water-closets are two on each floor for the joint use of the four tenements. They are thoroughly disconnected from the tenements and are of approved sanitary construction. The dust and ashes are disposed of through a ventilated shoot formed in the angle of the lobby leading to the water-closet, which appears to answer well; ordinary bins are provided for other refuse. Each tenant has the sole use for a fixed day of a spacious laundry appropriately lighted and fitted up, placed centrally on each floor for the use of the four tenements on that floor. On each side of the laundry is a scullery with double sink, one sink for each tenant. The interior of the tenements is attractive and cheerful, the walls are plastered and finished in distemper, the necessary cupboards, drawers, bunkers, etc., are provided. The windows are divided into small squares, the lower portion having tinted glass. They are fitted with stained and varnished venetian blinds. Sewerage and drainage have received the closest attention. The rents charged vary from 6s. per week for the three-roomed tenements to 2s. per week for the one-roomed tenements. There has been a great improvement in the death-rate.

A strange attempt at suicide is recorded. At Earlbourne, in Sussex, a tradesman was charged with attempting to kill himself by driving four long nails into his head. A medical man produced four long nails which he had with great difficulty withdrawn. These nails had penetrated three inches and entered the brain, but to the surprise of the medical staff at the Memorial Hospital the man had fully recovered. The would-be suicide said he drove the nails into his head in succession and that he had felt better since the occurrence. He is now sane and able to attend to his business.

Dr. T. Lauder Brunton delivered an address on Chloroform Anæsthesia before the Section of Pharmacology of the International Medical Congress in Berlin, and Mr. Alban Doran was appointed English Secretary to the Section of Obstetrics and Gynecology at the same meeting.

G. O. M.

BACCELLI will probably be the President of the next International Medical Congress which will be held three years hence in Rome. As Rome is too hot and not altogether healthy for foreign visitors in early August, the meeting will probably be held at the end of September.—*British Medical Journal*.

The main trouble for years has been, not a lack of water at the source of supply, but a lack of means for bringing it to the city. Most of the time the reservoir, or lake, at Croton village, has been overflowing, and the supply has gone to waste over the dam. The means for bringing the water to the city in ample quantity is therefore now provided. The natural supply, however, is unequally distributed through the year, and in order to get the full benefit of it, there must be sufficient storage capacity in the reservoirs to hold the surplus of wet periods for use in dry periods. Otherwise, a prolonged dry period would be perilous to the city's supply, and the aqueduct, alone—although entirely satisfactory in time of abundance—would be useless. Hence the absolute necessity of providing storage facilities in the Croton Valley commensurate with the aqueduct facilities afforded. The work of providing for the city's future needs will not be finished, therefore, until means have been adopted for storing the entire supply of the Croton watershed, in order that its distribution through the aqueducts may be equalized, not only throughout the months of each year, but through the succession of wet and dry years.

The capacity of the present Croton Lake is about nine million gallons, and subsidiary reservoirs further up the valley will more than double the provision for storage. But this will be insufficient either to receive the full supply or to hold back enough to provide against a protracted dry period. A dam will therefore be required in the lower part of the valley which will raise the capacity of the main reservoir to thirty million gallons; and this the great "Quaker Bridge dam," which is in contemplation, but which has not yet been definitely decided upon, would accomplish. The construction of such a dam is unquestionably essential to the completion of the system that will enable the city to make use of the entire Croton water supply. With it and the new aqueducts, New York will be amply provided for water until such time in the future when the increasing growth of the city will render it necessary to seek for a new source of supply.

The electrical execution at Auburn has naturally been the subject of universal attention of late. While many of the highly colored newspaper reports of it have been filled with all sorts of sensational horrors, there can be no doubt that this initial trial of the method, although managed apparently in a somewhat bungling manner, was entirely successful in producing death without pain to the subject. It cannot but be admitted, however, that the apparatus employed was defective, and that it did not work properly. For months strenuous efforts had been made in the interest of the electrical company whose dynamo was to be used to prevent the execution of the law in Kemmler's case, and the warden of Auburn

prison was seemingly in sympathy with these efforts. This has for the most part been attributed to his repugnance to the unpleasant duty that was to fall to him in being the first to execute a death sentence by the new process, but the tinkering with the apparatus, and the change of the fatal chair from one room to another at the last moment, without apparent reason, gave a suspicious appearance to the final preparations.

Wherever the trouble may have been, it is clear that the arrangements were bad. It was the opinion of the experts consulted on the question that, to induce certainty in instantaneously producing death, a current of from 1,500 to 1,800 volts should be used. That employed in this instance, however, seems to have varied in a very uncertain way from 700 to 1,300, and never to have risen above the latter figure. While the current was weaker than it should have been, the contact of the electrodes seems to have been imperfect. Moreover, the dynamo was a thousand feet away from the death chair, instead of being close at hand, and the system of signaling to the man in charge of it appears to have been clumsy or misunderstood in the working. Whether death was produced by the first passage of the current for seventeen seconds or not, there can be no question that the man was instantaneously rendered unconscious by its force. As certain movements were noticeable in the body after the current had been stopped, however, it was certainly very proper that it should be turned on again, and continued until there could be no possible doubt of his death. The first trial of execution by electricity was of necessity an experiment, and it was not conducted with that care and coolness that were requisite to insure perfect success. But it was made clear that, with the current that has been recommended for the purpose, with appliances free from defect in construction and operation, and with a firm and confident application of the process, there could hardly be any question of instant and painless death.

If the law requiring infliction of the death penalty by electricity is to continue in force, it would probably be advisable that it should be so modified as to provide but a single place in the State for such executions, instead of three, in order that the best possible chances for the successful application of the method might be afforded. As Dr. Shrady, editor of the *Medical Record*, who was one of the physicians present at the execution, states, the experiences in the Kemmler case have shown many difficulties in the way of a general adoption of the method of killing by electricity. "It is," he says, "far from being simple in its application. It requires careful and elaborate preparation. It multiplies machinery which, without expert manipulation, is liable to fail in its working and bring about disastrous results. It may be a source of danger to the exe-

cutioners and spectators." It is interesting to note that more than half an hour after the current was turned off the temperature of Kemmler's body, taken at the back of the neck, was 1° higher than ordinary blood temperature. In consequence of this, although all the physicians present concurred in the opinion that the man was positively dead, the autopsy was very properly postponed for three hours, as it was desired that no ground should be afforded for the slightest suspicion that he died under the scalpel, and not from the electric current. On removal of the skull cap the dura was found normal in texture, somewhat dull in color, particularly over the area corresponding with the zone of contact. In the pre-Rolandic region the meningeal vessels, over a considerable surface, were filled with carbonized blood, while on the internal aspect of the calvarium the meningeal vessels in the dura appeared to be black and carbonized. The carbonized vessels were so brittle that their ends were torn off with the calvarium, and presented a broken, crumbly appearance. This carbonization was limited in an abrupt manner, and the other meningeal vessels contained blood of a crimson-like hue corresponding to the outer burn produced by the current. Over the left hemisphere, $\frac{1}{3}$ of an inch to the left of the median line, there was a deep carbonized spot, corresponding with the carbonized portion of the calvarium. On handling the pons and medulla they were found to be warm, and by a thermometer inserted in the fourth ventricle the temperature was noted at 97° F. This corresponded with the area of temperature on the back of the neck, which was noted at 99° two hours after death, and 97.5° three hours after death. Capillary hæmorrhages were noted in the floor of the fourth ventricle, in the third ventricle, and in the anterior portion of the lateral ventricle; while the perivascular spaces appeared to be distended with serum and blood. The brain cortex in the area of contact was sensibly hardened to one-sixth of its depth, where there was a broken line of vascularity; but the spinal cord showed no gross appearances of pathological condition. The blood taken immediately after death showed under the microscope a markedly granular condition, almost suggesting an electrolytic dissolution of the red corpuscles.

At its last quarterly meeting, recently held in Albany, the State Commission in Lunacy, as the result of a systematic visitation of the various State hospitals for the insane, adopted a series of important recommendations for the prevention of fires in these institutions, and for the safety of the patients in case of the occurrence of fire. If these regulations were in force in insane asylums generally, it is safe to say that disastrous fires would not occur in them so frequently as is now the case.

Mr. Cornelius Vanderbilt, while in London during the early part of the summer, made a thorough

inspection of the People's Palace there, and in conjunction with his mother, Mrs. Wm. H. Vanderbilt, has just commenced the erection of a popular club-house and mission building which will embody many of the most useful and attractive features of that admirable charity. It is to be known as St. Bartholomew's Mission, and its general direction will be under the management of St. Bartholomew's Church, which the Vanderbilt family attend. It is especially designed for the use of the large tenement-house population residing to the eastward of the Grand Central Railway Station, and the building is to be six stories in height, with a frontage on Forty-second street of 75 feet, and a depth of 100 feet. In the basement there will be a very large swimming bath, with a heating apparatus to warm the water in winter, and it will be for the use, at different hours, of both males and females. On the same floor there will also be a kitchen and large dining-room, and a workroom where unskilled laborers who are out of employment can obtain temporary work. One of the floors is to be fitted up and fully equipped as a first-class gymnasium; and on the various other floors there will be a large chapel, a number of rooms for meetings, lectures and entertainments, sewing-rooms, rooms for boys' clubs, an extensive library and reading-room, etc. The cost of the whole will be over \$250,000, and altogether St. Bartholomew's Mission will be an institution which cannot but have a most salutary effect upon the physical, mental and moral welfare of the poor people in whose midst it is situated.

Among the various charities of the city there is none that is deserving of more unstinted praise or that has accomplished a more noble and extensive work, than the Children's Aid Society, and the sad news has just been received of the death, in Switzerland, of the Rev. Charles L. Brace, the founder and Secretary of the Society. While traveling in Europe some forty years ago, he made a study of the management of the schools, the prisons and the reformatory institutions in various countries; and he was especially impressed with the work of the Rauth Haus in Hamburg, and the Ragged House in London. When he returned to America he was filled with the subjects which he had lately been studying, and his attention being naturally turned to the condition of the tenement districts and of the immigrant poor in New York, early in 1853 he succeeded in interesting a large number of philanthropic people in the organization of the Children's Aid Society.

The great idea in Mr. Brace's work was to enable the young to help themselves, and since the organization of the Society more than 70,000 children have been placed in good homes in the country, many of them in the West; a large number of them having now grown up as useful and worthy citizens. Another feature of the work

was the establishment, in various parts of the city, of lodging-houses for boys and girls, and the books show that more than 200,000 young people have availed themselves of the comforts of these lodging-houses since they were started. Mention should also be made of the industrial schools, the summer homes for infants and young children, and the medical service among the tenement population which the Society has organized and maintained.

The first examinations for both law and medical students, under the new law, will be held at the College of Physicians and Surgeons the latter part of September; all such students not holding a college degree being required to pass a preliminary examination of substantial equivalents.

P. B. P.

The New York State Examination Act.

To the Editor:—Under the above title a correspondent of *THE JOURNAL*, Dr. Alfred Ludlow Carroll, of 30 West Fifty-ninth street, New York—we cheerfully give his name and address in full—offers extended criticism in your issue of August 23, 1890, of the recent statute enacted by the legislature of this State creating boards of medical examiners for the license to practice.

In the third paragraph of this singularly clear, logical and concise communication occurs one sentence to which I beg briefly to reply. It is worded as follows:

According to its report for 1889, its members numbered less than 200. . . . Yet from this small circle are to be exclusively appointed the arbiters of questions which concern the whole profession throughout the United States.

This refers to the Medical Society of the State of New York, which by the statute above referred to, is charged with the duty of nominating to the Regents of the University one of the boards of medical examiners to be created.

The Medical Society of the State of New York derives its members from the county medical societies, the New York Academy of Medicine,¹ and the incorporated medical schools, which send delegates to the State society; these delegates, after having served three years as such, during which time they must have attended at least two annual meetings, become eligible to permanent membership. The number of permanent members in 1889 was 194, and in 1890 it had increased to 229, besides 33 retired permanent members. The number of delegates provided by law is 145; this would give an aggregate of 374 members entitled to vote at any meeting on any question. It is safe to say that these 374 votes represent a constituency aggregating upwards of 4,000 physicians. For various and obvious reasons not all

of these voters can attend every meeting; at the meeting of 1889, 82 delegates and 92 permanent members were in actual attendance—a safe proportion of the whole, one would say, to act upon any question.

I have already said enough to show the basis of the organization of the Medical Society of the State of New York—a plan which has received editorial commendation in a recent number of *THE JOURNAL*. This much seems due to your readers, lest they infer from the paragraph quoted from your correspondent that it was “a small circle,” and not a representative body deriving its powers from a large constituency, that should nominate the board of medical examiners “which concern the whole profession throughout the United States.” This has been substantially the plan of its organization since its charter was granted by the legislature in 1806. It is a society created by law, recognized by its statutes, and acting within its limitations.

With the other questions so ably discoursed upon by your correspondent I have not thought it proper to deal at this time. The Regents of the University surely are competent to defend themselves, and a trial of the law will demonstrate its efficiency or the reverse; then, if need be, discussion in regard to amendments will be in order.

WILLIAM WARREN POTTER.

284 Franklin street, Buffalo, N. Y.

BOOK REVIEWS.

CHEMISTRY, ORGANIC AND INORGANIC, WITH EXPERIMENTS. By CHARLES LOUDON BLOXAM. Seventh Edition, Revised and Edited by JOHN MILLAR THOMSON, Professor of Chemistry, Kings College, London, and ARTHUR G. BLOXAM, Demonstrator of Chemistry, Royal Agricultural College, Cirencester. Philadelphia: P. Blakiston, Son & Co., 1012 Walnut street. 1890.

The seventh edition of this familiar text-book is now presented to the public. A thorough revision of the work has been made. In order that it might fully represent the latest advances in chemistry, much of the matter has been re-written. In each department there is a vast amount both of theoretical and practical instruction. This is especially true of the chapter which treats of the metals.

The latest views with reference to organic chemistry have required that this part of the work should be materially revised, and the chapter upon the chemistry of vegetation is entirely re-written. The “new remedies” find their appropriate places in the text, and add value to the work. Much of valuable instruction is contained in the closing portion of the work, which treats

¹ The New York Academy of Medicine 5 delegates, the incorporated schools one each, and the county societies one for each assembly district.

of "the useful application of the principles of organic chemistry."

It is a substantial, finely printed and illustrated work, suited alike for the library and the laboratory. For sale by A. C. McClurg & Co., 117-121 Wabash avenue, Chicago. Price, \$4.50.

A MANUAL OF ORGANIC MATERIA MEDICA.—Being a guide to Materia Medica of the Vegetable and Animal Kingdoms, for the use of Students, Druggists, Pharmacists and Physicians. By JOHN M. MAIRCH, Ph.M., Ph.D., Professor of Materia Medica and Botany in the Philadelphia College of Pharmacy. Fourth edition, with two hundred and fifty-nine illustrations. Philadelphia: Lea Brothers & Co. Chicago: A. C. McClurg & Co. Price, \$3.00.

Three editions of this work have been exhausted within the last eight years, and this, the fourth, is required to meet the continued demand. Prof. Mairch is so well known to students, pharmacists and physicians that his work has little need of commendation. The physical characters of drugs are well described, but the more important feature, and which gives special value to the book, is his effort, so far as present experience will permit, to clearly set forth the medical properties of the proximate principles of medicines, and to clearly set forth the effects of solvents in order to determine for each its proper menstruum, and also to carefully avoid incompatibilities. The work bears evidence of careful revision, and contains the results of the latest investigations in this important branch. The materia medica of the western continent will yet require a vast amount of careful investigation, and the present work is of special value in this field.

MISCELLANY.

TOMATOES AS FOOD.—A somewhat enthusiastic discussion is going on as to the alleged great value of the tomato as food, and its alleged influence on dyspepsia and liver complaints. All this is in a measure apocryphal, but that tomatoes, whether cooked or uncooked, but especially uncooked, form a very wholesome element in diet is unquestionable. No doubt where it is possible to follow the advice of growing your own tomatoes as well as eating them, the necessary outdoor exercise in gardening involved is excellent, and we endorse the advice: Grow your own tomatoes and eat them, if you have a garden.—*British Medical Journal*.

LETTERS RECEIVED.

Dr. A. B. Brackett, Goldfield, Ia.; J. F. Madden, New York; Dr. W. M. Findley, Altoona, Pa.; Alice L. Smith, Boston; Dr. F. R. Zeit, Medford, Wis.; Dr. J. N. Eldred, Chasaning, Mich.; Dr. C. A. Jessup, St. Louis, Mo.; Dr. W. Eustis, Farmington, Minn.; New York Pasteur Institute; Dr. J. H. Eskridge, Chicago; Dr. J. R. Barnett, Neenah, Wis.; Dr. M. G. Koll, Cleveland, O.; Dr. C. L. Hatfield, Farmer City, Ill.; J. H. Chambers & Co., St.

Louis, Mo.; Dr. G. W. Galloway, Findlay, O.; Dr. R. J. Dungleison, Philadelphia, Pa.; Galvano Faradic Mfg. Co., New York; J. Walter Thompson, New York; Geo. S. Davis, Detroit, Mich.; Dr. Wm. B. Atkinson, Philadelphia, Pa.; E. Steiger & Co., New York; Henry Bernd & Co., St. Louis; Dr. C. L. Kinnaman, Cleveland, O.; Dr. C. R. Schaefer, Indianapolis, Ind.; Dr. C. W. Richardson, Washington; R. W. Gardner, New York; Dr. D. B. Collins, Madison, Wis.; Geo. Herbein, Ph. G., Denver, Col.; Dr. J. D. Scouller, Pontiac, Ill.; Dr. Wm. B. Davis, Cincinnati, O.; Dr. W. H. Johnson, Dudley, Pa.; Dr. J. B. Burnett, Newark, N. J.; Dr. W. L. Bullard, Columbus, Ga.; Dr. F. W. Hays, Indianapolis, Ind.; Dr. J. T. Jelks, Hot Springs, Ark.; Dr. M. H. Garten, Lincoln, Neb.; Dr. J. B. Matteson, Brooklyn, N. Y.; Miss L. Brittain, Cincinnati, O.; Dr. Richard H. Harte, Philadelphia, Pa.; D. R. Craig, Keokuk, Ia.; Dr. J. E. Boylan, Cincinnati, O.; Dr. A. B. Patterson, Atlanta, Ga.; Dr. W. F. Rochelle, Jackson, Tenn.; Parke, Davis & Co., Detroit, Mich.; W. P. Cleary, New York; Dr. T. E. Cunningham, Cambridgeport, Mass.; Dr. W. C. Hamilton, Philadelphia; Dr. H. H. Peachy, Loveland, O.; Chas. H. Phillips Chemical Co., Dr. C. H. Knight, New York; Dr. H. H. Roedel, Lebanon, Pa.; Dr. E. Chenery, Boston, Mass.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from August 16, 1890, to August 22, 1890.

Capt. George McCreeny, Asst. Surgeon, leave of absence granted by orders No. 84, Ft. Warren, Mass., August 15, 1890, is hereby extended fifteen days. S. O. 193, Hdqrs. Div. of the Atlantic, Governor's Island, New York City, August 15, 1890.

By direction of the Acting Secretary of War, the retirement from active service this date, by operation of law, of Brigadier General John Moore, Surgeon-General U. S. Army, under the provisions of the Act of Congress approved June 30, 1882, is announced. General Moore will repair to his home, Bloomington, Ind. Par. 2, S. O. 191, A. G. O., Washington, August 16, 1890.

By direction of the Acting Secretary of War, First Lieutenant Charles F. Mason, Asst. Surgeon, is relieved from further temporary duty at Ft. Logan, Col., and will report for duty at his proper station (Ft. Washakie, Wyo.). Par. 3, S. O. 191, A. G. O., Washington, August 16, 1890.

By direction of the Acting Secretary of War, a board of medical officers, to consist of: Major Joseph V. D. Middleton, Surgeon; Major Clarence Ewen, Surgeon; Captain William E. Hopkins, Asst. Surgeon, will assemble at the U. S. Military Academy, West Point, N. Y., at 11 o'clock A. M., August 27, 1890, or as soon thereafter as practicable, to examine into the physical qualifications of the candidates for admission to the Academy. Par. 1, S. O. 192, A. G. O., Washington, August 18, 1890. Capt. Walter Reed, Asst. Surgeon, is granted leave of absence for four months, to take effect about September 1, 1890. With the approval of the Acting Secretary of War. Par. 17, S. O. 192, A. G. O., Washington, August 18, 1890.

PROMOTIONS.

Asst. Surgeon Francis J. Ives July 25, 1890: To be Asst. Surgeon with the rank of Captain, after five years' service, in accordance with the Act of June 23, 1874. A. G. O., Hdqrs. of the Army, Washington, August 11, 1890.

First Lieut. William P. Kendall, Asst. Surgeon U. S. Army: To be Asst. Surgeon with rank of Captain, after five years' service, from August 12, 1890. A. G. O., Hdqrs. of the Army, Washington, August 18, 1890.

RETIREMENT.

Brigadier General John Moore, Surgeon-General, August 16, 1890 (Act of June 30, 1882). A. G. O., Hdqrs. of the Army, August 18, 1890.

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ORIGINAL ARTICLES.

FUNCTIONAL ALBUMINURIA;

OR, ALBUMINURIA IN PERSONS APPARENTLY HEALTHY.

Read in the Section of Practice of Medicine, Materia Medica and Physiology at the Forty-first Annual Meeting of the American Medical Association, held in Nashville, Tenn., May 22, 1890.

BY WM. B. DAVIS, A.M., M.D.,
OF CINCINNATI, OHIO.

Mr. Albert M. came to my office, July 24, 1885, under a good deal of nervous excitement, and requested me to make a thorough examination of his physical condition. I asked him if he was sick? "No," he replied, "I am in perfect health, but I have just been examined for life assurance, and the medical officer has declined my application, because he says I have albumen in my urine, and he advised me to report the fact at once to my physician." I requested him to send me the following evening, three samples of his urine, voided an hour after each meal. I had been his family physician for ten years, and during that period, he had been apparently in the best of health. He had had no sickness, that I can recall, and had not lost a day from his business during that period. An American by birth, of German parentage, nervous temperament, spare build, æt. 30 years, abstemious in his habits, good moral character, married, prosperous in business. Proprietor and general superintendent of a large harness manufactory. Had scarlatina when a child; no history of rheumatism, gout, dyspepsia, or syphilis, in personal or family history; no distinct increase of vascular tension; no cardiac hypertrophy; and no retinal symptoms. Father died at 73 years of age, of bronchitis. Mother living, in good health, aged 71 years; brothers and sisters living, in good health.

My note-book reports the following results of the examination of his urine, tested by boiling and nitric acid:

July 25, 1885, 7 A.M. Color, dark straw; reaction, acid; spec. grav., 1.030. No albumen. No casts.
July 25, 1885, 1:30 P.M. Color, dark straw; reaction, acid; spec. grav., 1.030. Albumen, 1-12 bulk of test tube. No casts, but a few epithelial cells.
July 25, 1885, 6 P.M. Color, dark straw; reaction, acid; spec. grav., 1.030. No albumen. No casts.

A number of subsequent analyses were made with the same results, except that occasionally a trace of albumen was found in his evening urine.

Thinking that his diet had something to do with the production of the albumen, I questioned him closely as to what he ate and drank. He was a temperate man at all times, but occasionally took a glass of beer. I directed him to abstain from the use of beer, and all forms of alcoholic liquors, which he did. Then I directed him to omit eggs from his diet, then meats, then tea and coffee, then milk, and finally, I restricted him to toast and water for his morning and evening repasts, and a bowl of broth for his dinner. A careful examination of his urine, forty-eight hours after the elimination of each article of diet, convinced me that his food and drink had nothing whatever to do with the production of the albumen. I had him under close observation for seven weeks, during which time his appetite was good, digestion perfect, sleep profound, capacity for work excellent, and the albumen appeared in his noon urine with the regularity of clock-work. I had given him no medication, except some tinct. of iron, and I now dismissed him with the injunction to give no further attention to his urine as long as he felt well. I kept him under observation for the next three years, during all of which time he was in good health. October 20, 1888, I made a note of an examination of his urine, which gave the same results as the first report.

On April 1, of this year, I made a very careful urinalysis of his 24 hours' urine, examining separately each specimen as voided.

Whole amount, 40 oz.; reaction, acid; color, dark straw; specific gravity, 1.020; albumen, 0.012 per cent.; quantity of urea normal; no peptones.

Urine passed at 3 A.M. Color, dark straw; reaction, acid; spec. grav., 1.028. No albumen. A few hyaline casts, abundant oxalate of lime crystals, abundant mucus, and an occasional leucocyte.

Urine passed at 8:40 A.M. Color, pale straw; reaction, acid; spec. grav., 1.012. No albumen. No casts.

Urine passed at 1:30 P.M. Straw color; reaction, acid; spec. grav., 1.020. Albumen, 0.016 $\frac{2}{3}$ per cent., a few hyaline casts, crystals of urates, occasional epithelial cell from bladder.

Urine passed at 8 P.M. Straw color; reaction, acid;

spec. grav., 1.020. A trace of albumen. No casts, occasional uric acid crystals.

Urine passed at 11 P.M. Straw color; reaction, acid; spec. grav., 1.025. Albumen, 0.025 per cent., a few epithelial and hyaline casts.

An examination of the 24 hours' urine, passed April 10, at same intervals, revealed the same quantity of albumen, but no casts; a few epithelial cells and uric acid crystals were observed in the 1:30 P.M. urine; specific gravity ranged from 1.022 to 1.030; quantity, 40 oz.; acid, reaction; dark straw color.

Five years have now elapsed since he became aware of the fact, that albumen appeared in his urine at stated intervals. During all of these years, he had not lost a day from his large and responsible business on account of personal illness; he had increased fifteen pounds in weight, and had been and still is in vigorous health. If he had not made application for life assurance, no one would have known that albumen appeared daily in his urine.

A physician of Cincinnati, M. Casset, M.D., to whom I had made mention of the peculiarities of this case, subsequently had two similar cases come under his professional care, and he has kindly furnished me his memoranda concerning them. They may be stated in brief, as follows:

Both were apparently in good health, applied for life assurance, and were rejected because of albuminuria. In one the albumen was uniformly present in the afternoon urine, but absent in the morning. In the other it was observed only after indiscretions in diet, and champagne suppers.

During three years' observation they were not incapacitated from business, and were apparently in good health, although the albuminuria continued the same.

It is scarce more than a century since Cotugno discovered albumen in the urine, and only about sixty years have elapsed since a distinguished physician defined the clinical significance of albuminuria, and thereby attached his name to one of the gravest disorders that flesh is heir to. So profoundly and universally has the profession been impressed with the gravity of albuminuria, as defined by Dr. Bright, that its discovery was looked upon as the death-warrant of the patient in whom it appeared. After a time it was found that albuminuria was frequently present in pregnancy and the puerperal state, in zymotic and other febrile diseases, saturnine intoxication, impediments to the circulation, and other conditions. These discoveries qualified its significance somewhat, but did not materially alter the gravity of its presence in other cases. Then Finlayson, Mahomed, and other authorities demonstrated that Bright's disease may occur without albuminuria, and finally, during the past few years reports have appeared in the medical press, in both Europe and America, to the effect that albumi-

nuria has been detected in persons who were apparently healthy, and these reports have been confirmed by so many able observers that there seems to be no doubt of their correctness. In consequence of these qualifications it is now pretty generally believed that the significance of albuminuria, as first announced, was over-estimated; nevertheless its grave significance is so thoroughly ingrained in the profession that we can scarcely admit of any other condition than a pathological one as being compatible with its presence. Said a prominent physician in my presence quite recently, as he looked into a test tube and saw a precipitation of albumen: "My patient is doomed—there is his death-warrant," pointing to the albumen.

Edes states that the presence of albumen in minute traces, or something which gives a similar reaction with the most delicate reagents, is much more common than its absence, and the amount detectable by heat and nitric acid may be approximately stated as from 10 to 20 per cent. of persons examined. Leube found albumen in the urine of sixteen per cent. of 119 healthy soldiers; Munn found it in 11 per cent. of 200 apparently healthy persons who presented themselves for life assurance. He said that the albuminuria "was attended with no discomfort or unpleasant symptom, and with no discoverable cause for its existence." Mahomed found albuminuria in 15 per cent. of seventy-seven "practically healthy persons" examined for life assurance by him. Granger Stewart reports finding a general average of 31 per cent. among those examined by him. Capitan found in soldiers 45, and in children 89 per cent.; De la Celle says albumen is to be found at times in the urine of 76 to 100 per cent. of healthy persons, both young adults and children; and Prof. Senator says, "I should consider it not improbable that if we were to examine the urine for long periods, at different times of the day, and with care, we should sooner or later find it to contain albumen in the case of every healthy man."

It may be justly concluded from these reports and others that might be given that there are a large number of persons—apparently in good health—going about their business at the present time with albuminuria, and utterly unconscious of the fact. It is a matter of considerable importance to both the public and the profession to make ourselves fully and rightfully informed with regard to them, and of the full clinical significance of the albuminuria. The subject is yet comparatively new, and each case requires a separate and an attentive study, in order to enable us to recognize them when they may happen to fall under our view.

Great confusion exists with regard to the character and manifestation of this form of albuminuria. This is noticeable in the variety of

terms used by writers to designate the particular form or phase of it which has come under their observation. The following are a few which I have met with in our current literature, viz.: dietetic, non-organic, intermittent, remittent, recurrent, non-dangerous, paroxysmal, from muscular exertion, latent, simple, transient, postural, functional, physiological, cyclical, adolescent, mechanical, etc. It has been well said that these are terms permissible only so long as we remain unacquainted with the conditions which produce it. The term "functional" was originally applied by Prout to distinguish it from organic disease of the kidney. "Postural" was applied by Sterling because he observed in his cases that the albuminuria appeared on rising to the upright posture, and "may be made to disappear at any time by merely lying down." "Adolescent" was applied by Moxon because of its frequent observance in youth and early manhood. "Cyclical" was applied by Pavy because he had observed a diurnal variation of its appearance in the urine, of a more or less regular nature, and that which was observed one day was repeated with more or less closeness day after day for weeks, months, and even years. The term "functional" embraces all forms of non-organic albuminuria, and hence my use of the term in designating the class under discussion.

Stewart classifies functional albuminuria as follows, viz.: (1) Paroxysmal, (2) Dietetic, (3) Albuminuria from muscular exertion, (4) Simple persistent.

Moxon suggests two classes: (1) The albuminuria of adolescents, (2) Remittent. This latter class he divides into two groups: (a) Where there may be renal disease, and (b) where there is none.

Ralfe prefers the following classification: (1) Cyclical, (2) Paroxysmal, (3) Intermittent.

The case I have reported, it will be observed, corresponds to that class which Pavy has termed "cyclical albuminuria."

CAUSES OF FUNCTIONAL ALBUMINURIA.

A distinguished authority on the subject of albuminuria (Mahomed) stated that "although a large amount of attention has been devoted to the experimental investigation of the pathology of albuminuria during recent years, our knowledge of it remains very incomplete, and owing to the contradictory results that have been recorded, what little knowledge we possess appears uncertain." If this be true of the albuminuria of organic disease of the kidneys, how much more is it true of functional albuminuria.

From time to time it has been observed that a variety of causes may produce functional albuminuria, viz.: cold bathing, the ingestion of food, excesses in eating, drinking, and venery, vascular tension, particularly at puberty, passive

congestion, cold and wet, privation, depressing emotions, an elongated prepuce, skin disease, posture, prolonged brain work, severe physical exercise, hepatic complications, increased pressure and retardation of blood flow, mechanical pressure, etc. Schrieber has shown that compression of the thorax in young subjects for ninety seconds will cause it, and Ralfe observed that the weight of a soldier's accoutrements upon the chest may have been the cause in the production of albuminuria. The effects of over-study, combined with anxiety, very frequently produces it in candidates for graduation in our colleges. Prof. Ralfe said, "hardly a season passes but I am consulted by some student who has discovered albumen in his urine whilst reading for his examination, and of whom I hear no further when his troubles are over."

Various theories have been advanced to explain how albumen escapes into the urine in these cases. One states, "that it is due to changes in the secreting structures;" another ascribes it "to a weakened state of the renal vaso-motor centres, which are easily thrown off their balance by exaggerated physiological conditions." Sir Wm. Gull says that "it is due to atony of vessels and nerves." Bartels attributes it to an altered state of blood pressure. He says: "Perfectly healthy kidneys, solely in consequence of an altered state of blood-pressure upon their vessels, can excrete albuminous urine." He further states that the "albuminuria may arise as an entirely transitory symptom from abnormal elevation of the blood pressure, and pass off again as quickly as the cause from which it arose; but, on the other hand, this cause abiding, it too, may endure, and lastly, it may come and go, fluctuating with the varying grades of pressure which produced it." In all of these conditions, he says, the actual per cent. of albumen is but little. Prof. Semmola thinks that albuminuria, in its functional manifestations, is due to the presence in the blood of albumens of greater diffusibility than the normal blood albumen. Moxon and Collins attribute it largely to morbid matters in the urine, particularly oxalate of lime. While many other writers hold to the view that it is due to "changes in the kidneys, brought about by changes in the blood." These conflicting theories and confusion of terms make it apparent that we have made but little progress in our study of albuminuria since the time of Bright. We have learned that more than one form of albumen appears in the urine, and yet, we have blindly acted as though all forms have the same grave significance.

Stokvis, Brunton, Claude Bernard, and others have observed in the urine certain food albumens, generally classed as peptones, and Bruce Jones, Gerhardt, Green, and Bayton have described certain anomalous forms of albumen as occurring in

the urine, to which the terms of "hemi-albumose," "met-albumen," "leth-albumen" and "albuminose" have been applied. As far back as the year 1878, Prof. Moxon stated that it had been shown by experiment that "some albumens differ from other albumens in the tendency it shows to escape from the renal vessels after the manner of a thing excreted as unsuitable, and hence arose the recognition as probable of a certain incompleteness in the production of peptones or albuminous products of digestion, so that *abortive kinds of albumen* may be found in incomplete digestion, these abortive albumens filtering off through the kidneys and giving rise to albuminuria, which would be no sign of renal disease, but only a result of dyspepsia." After relating the various causes which observation has shown will produce temporary albuminuria, he says: "Albuminuria becomes in relation to disorders of the renal system what neuralgia is to disorders of the nervous system, or what dyspnoea is in disorders of the respiratory system—a name of a symptom—which is on the very outskirts of an intimate knowledge of the nature of any case, and thus albuminuria, as Dr. Bright knew it, becomes by-gone and historic." Gerhardt, in the year 1873, differentiated and distinguished albuminuria of fever from that which is strictly renal, and due to structural changes in the kidney. He concluded that the albuminuria of renal disease was serum-albumen, while the albumen incident to the febrile state represented the rapid disintegration of a great number of the red globules.

If we accept the theory that the urinary albumen comes from the blood, it would necessarily follow that more than one coagulable albuminous substance should pass into the urine, for the blood normally contains at least two such substances in solution, viz., the serum-albumen and the globuline. Prof. Senator says, "There is not the slightest ground for the assumption that always, and without exception, only one of these two substances, possibly the serum-albumen as generally supposed, escapes from the blood." Globuline is much more diffusible than serum-albumen, and consequently more capable of passing through a filter.

Bartels says, "Globuline can diffuse itself through animal membranes, and it ought to astonish us, that this substance, which is always contained in normal serum, should not, by reason of its property of diffusibility, pass over constantly into the urine of healthy persons."

Maguire reported three cases of cyclic albuminuria, in which the albumen consisted entirely of globuline. "The ratio of globuline to serum-albumen, was inversely proportional to the gravity of the case." Stokvis considers pathological albumen to be serum-albumen. Pavy observed that the "usual form of albumen met with in

renal disease, is serum-albumen; while in cyclic albuminuria, two kinds of albuminous matter are present—one which, like mucin and alkali-albumen, is precipitated—the other corresponds with serum-albumen." Edes states, "When the albumen is found to consist largely or wholly of globuline, that it has a less grave significance than serum albumen."

Sufficient has been said to indicate that the present line of investigation is pointing strongly toward globuline as the form of albumen which is likely to be found in the various forms of functional albuminuria, when chemistry will furnish us with simpler methods, and more reliable reagents for its discovery.

A number of examinations of the albuminous matter found in the urine of my patient, in order to determine whether it consisted of globuline, gave negative results. Prof. Karl Langenbeck, who made the last test for me, says in his report that, "as the best methods for the separation of globuline from ordinary albumen failed, the question arose whether the failure be actually due to the absence of globuline, or whether there be conditions in the urine itself preventing the precipitation. A solution of globuline was accordingly prepared from the crystalline lens of the eye, in a part of which aqueous solution well-washed carbonic acid gas was passed through with satisfactory results. The remainder was added to the urine of 8 A.M. and the carbonic acid reaction again tried. It failed, proving that there were conditions in the urine preventing the detection of globuline, even when known to be present."

PROGNOSIS.

It is a matter of deep importance for us to be in a position to say, what will be the future of these cases of functional albuminuria? In the darkness which surrounds them the cry goes forth, "Watchman, what of the night?" Can we in reply say "The morning cometh?" Will they continue simple, or will they culminate in organic renal disease? In reply to this question, Granger Stewart said, "so considerable a proportion of my cases have gone on for long periods without having done so, that I am confident it must be rare when they have such an ending," and he states that he gives a hopeful diagnosis if the quantity of urea is normal, the pulse and heart in a healthy condition, and there is an absence of tube casts. In a case which he reported, he gave the following reasons for giving a favorable prognosis, viz.:

First. "There is a period in every day in which the urine is free from albumen."

Second. "The quantity of urine and urea is normal."

Third. "That except on two occasions, no tube casts have ever been found."

Fourth. "There is no symptom, except the

albuminuria, at all fitted to suggest the idea of renal disease."

Edes says: "Some cases of this kind have been followed for years without the occurrence of any symptoms leading to a suspicion of progressive renal disease. In many the albumen has disappeared without special treatment, and without the change being assignable to any particular cause."

Mahomed says: "For my own part, I am quite convinced that we may have albuminuria with practically healthy kidneys."

Roberts says: "The prognosis in functional albuminuria is favorable. It is now certain that a sensible albuminuria is of much commoner occurrence in healthy persons than has been hitherto supposed."

Pavy, speaking of cyclic albuminuria, says: "In it we have a condition which stands with sharply defined characteristics, upon its own ground, distinctly apart from that belonging to other forms of albuminuria, and without the evidence of existence or pre-existence of renal disease. . . . I could cite cases where a considerable quantity of albumen has been for a lengthened period discoverable without the development of the accompaniments of Bright's disease. . . . Experience has not shown that the disposition exists to pass out of their original form into the class associated with textural disease."

Sir Wm. Gull said: "Albuminuria occurred in growing men and boys almost as frequently as spermatorrhea." He has had case after case of chronic simple albuminuria in young men, and all have ended in complete restoration.

Senator says normal urine is often found to be albuminous; if properly examined. He found albumen in his own urine and that of his three assistants in the Augusta Hospital (Berlin)—"all of us enjoying excellent health," he says. In his own case he found it most frequently during the morning (11 to 1 o'clock), and only exceptionally in the late afternoon after the principal meal; and he further states: "I should consider it not improbable that if we were to examine the urine. . . . with great care, we should, sooner or later, find it to contain albumen in the case of every healthy man."

Klemperer says: "Cyclic albuminuria exhibits no signs of Bright's disease. Indeed, all symptoms, except the albuminuria, may be absent. Its course is chronic; it is the source, of no danger to life; it does not become transformed into serious disease of kidney; and it may finally greatly diminish or disappear entirely."

Keating says: "In a large number of cases it is simply a temporary derangement of no more pathological consequence than an ordinary cold in the head, or a bronchial catarrh, and has the same consequence as these."

On the contrary there are those who hold to

the view that albuminuria is a pathological condition, and consequently that the so-called functional albuminuria is but a prelude of structural renal disease.

Geo. Johnson says a frequently recurring albuminuria if neglected, will invariably result, though it may be after many years, in structural degeneration of the kidneys. In one case that came under his observation, a period of thirty-six years intervened before a fatal termination.

Munn, in a recent letter, says: "I am satisfied that albuminuria is never a normal condition."

Kinnicutt has never been able to divest himself of an anxiety in regard to the future of such cases, although in a series of cases of "temporary albuminuria" which he published seven or eight years ago, all have recovered but a single case, and that one remained in excellent health.

Nevertheless, the majority of the writers on functional albuminuria hold that it is separate and distinct from organic renal disease, and that the prognosis is favorable.

WHAT ARE THE DISTINGUISHING CHARACTERISTICS OF FUNCTIONAL ALBUMINURIA?

The consensus of opinion, as expressed through medical journalism during the past few years concerning the characteristics of functional albuminuria, may be formulated as follows, viz.:

First. All symptoms of Bright's disease, except albuminuria, are absent. Consequently there is an absence of retinal symptoms, high arterial tension, and hypertrophy of heart.

Second. The person is apparently in good health.

Third. The coloration and the density of the twenty-four hours' urine is normal, or it may be darker in color and heavier in density. The specific gravity may range from 1,020 to 1,030.

Fourth. The quantity of albumen is comparatively small, varying from a slight opalescent cloud to one-fourth of the column of the test tube.

Fifth. There is a period of the twenty-four hours when the albumen is absent from the urine.

Sixth. There is an absence of tube casts.

Tyson says, a consideration which goes far toward establishing the functional character of it, although not essential to this end, is the absence of albumen on rising in the morning.

Janeway says a distinguishing characteristic is its presence in daytime and absence at night.

Ralfe observed that in functional albuminuria the correspondence between the fluid ingested and that passed out of the body follows the ordinary physiological law.

Roberts says, as a rule, with very few exceptions, when the urine is only slightly albuminous, and at the same time dense and highly colored, Bright's disease is not present.

Tyson says, when the quantity of albumen

habitually exceeds one-fifth of the bulk of the specimen examined, he would consider it large. Sterling fixes the limit at one-sixth, Janeway at one-fourth, and Roberts at one-half.

THE SIGNIFICANCE OF TUBE CASTS.

All writers accord a grave significance to the presence of tube casts, evidently regarding their presence as an unmistakable evidence of renal disease. There is no question but that if tube casts are habitually present, and in large numbers, that the evidence of organic renal disease would be indisputable. If, however, they have been observed but once or twice in an extended series of examinations, their presence would have but little significance, particularly if they were absent from several other specimens of urine voided the same day. Tyson says that he has known men with good medical education say that casts were present in a given specimen when there were none, certain granular aggregations having been mistaken for them. Janeway says an occasional occurrence of a hyaline cast can not be considered a proof of chronic renal disease; "they may appear in the urine after very slight and temporary changes, and as quickly disappear." Granger Stewart observed in what he calls "paroxysmal albuminuria," sudden and copious occurrence of albumen in the urine with numerous casts, the process lasting only a short time, and recurring at intervals, and he has never known them prove permanently injurious.

Allchin says: "Casts afford practical information, rarely, if ever, conclusive, when taken alone. . . . The fact that casts are abundant in any sample of urine is not in itself of necessity a serious sign; epithelial casts are met with in the earlier stages of nephritis, and their significance depends on the character of the epithelial cells."

Bartels mentions a case of "transitory albuminuria," where, besides the albumen and other sediment, there was epithelium and a quantity of thick hyaline casts, in which were clustered the ordinary well-conditioned epithelial cells from renal tubes, and after the third day no further casts could be discovered.

Munn reports three cases of albuminuria without casts, which one year later revealed hyaline casts in two cases, and epithelial, hyaline, and granular casts in the remaining one. An examination made a year afterward found the urine of all free from casts but rich in albumen.

TREATMENT.

No line of medical treatment has been found to exert any visible effect upon functional albuminuria. Care and attention should be paid to dietetic and hygienic considerations, and a quiet, even, and healthy mode of life, free from exposure to extreme conditions of any sort, should be adopted, and each case kept under observation.

Until we know much more than we do now of

this interesting condition, each case will require a separate study, as a correct generalization will depend upon the study of the individual case.

Life assurance companies have largely been the means of acquainting the profession with the knowledge that albuminuria may be present in persons apparently healthy. These companies owe it to themselves, and particularly to the large class of unfortunate persons, whom they have excluded from the benefits of life assurance, because albumen was found in their urine, that they shall use all means within their power in assisting the profession to an early solution of the significance of albuminuria in such cases.

These life assurance companies have their medical officers in every town and hamlet of our country, and many of the companies are now requiring an examination of the urine of every applicant for assurance. If their medical examiners are competent to make a urinalysis, and if they will keep a careful record of all persons in whom albuminuria has been found, and then by aid of the family physician, keep the persons under observation for a few years, examining their urine occasionally, both chemically and microscopically, and noting whatever changes may occur in them, and then report the results of their observations to the medical directors of their respective companies, the real significance of albuminuria in persons apparently healthy would soon be solved.

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THE ADVANTAGES AND DISADVANTAGES OF HIGH ALTITUDES IN DISEASES OF AIR-PASSAGES.

Read in the Section of State Medicine at the Forty-first Annual Meeting of the American Medical Association, Nashville, Tenn., May 21, 1890.

BY T. G. HORN, M.D.,
OF COLORADO SPRINGS, COL.

In presenting this subject to this honorable body of professional men, I wish to say in the very beginning that I am to a great extent simply giving my own convictions, based upon some fifteen years' experience in an altitude ranging from five thousand to ten thousand feet above sea level, and do not expect to be sustained in general by climatologists.

It is a fact admitted by all physicians, specialists or other, that in all diseases of the air-passages, and especially so in catarrhal, bronchial, and similar diseases of the mucous membrane, as well as in incipient phthisis, the first object to be secured is a climate that will permit a free outdoor life in a pure air.

Intense or even moderate heat, if persistent, throws a physiological strain on the liver, skin and digestive system, and thus prevents proper nutrition, so essential to improvement in disease under consideration.

Again, intense cold throws a physiological strain on the lungs and kidneys, and also interferes with open air exercise, so necessary in such diseases; therefore a climate in which the winter is not very cold and the summer not very warm, should be selected for our patients suffering from disease of the air-passages. We claim these prerequisites in the mountain climate, and particularly so in the Rocky Mountains. As we rise

above the sea level to an altitude of five thousand feet, we meet with two important meteorological conditions: the air becomes more and more rarefied, and the heat diminishes, independently of the more or less obliquity of the sun's rays, until we reach a point, known to us as timber line, where the sun's heat is insufficient to melt the snow, and we have the privilege of looking upon the "beautiful" at all seasons of the year.

Dr. J. Henry Bennett says, in one of his valuable articles on climate, that "mountain climate has of late been much recommended for phthisis; that two conditions, namely, purity of air and sparseness of human habitation, are quite sufficient to account for the rarity of phthisis amongst their inhabitants, and for the improvement of the phthisical who resort to them." I venture the assertion that the improvement of the phthisical and the absence of phthisis among the residents of the mountain country, depends largely upon the condition of the atmospheric exhalations of the mountains, the equable temperature, the cloudless days, the electrical current eight to ten miles eastward from the base of the mountains, the absence of humidity in the atmosphere, the unresisting desire to get out doors, the refreshing, exhilarating influence of exercise, the strengthening of lung tissue caused by compulsory expansion while taking exercise in such altitudes, the increased strength of the digestive organs, the assimilation of food, continued muscular development, the attractive, constant and varied scenery, water derived from the eternal snows and ice of the mountain gorges, pure as the crystal formation found imbedded in the granite sides of these majestic rocks, carved and formed into beautiful domes and terraces by the Great Architect of the universe. These are some of the advantages of high altitudes in diseases of the air-passages more apparent, in my opinion, than the want of subjects. In specifying or classifying disease peculiar to the air-passages, benefited by high altitudes and advantages of different localities in same, or differing but little in altitude, I must confine myself to experience alone, and will give such diseases and stage of disease, which are found to be more susceptible to the salutary influence of climate in named altitudes.

We will take, first, the class known as consumptives. This is truly a wide field and covers the entire universe. A class of patients attracting the attention of every physician in the world, and especially the United States. First we select the hereditary tendency, those showing the first symptoms of this dreaded disease, the morning cough, the earliest physical signs of chronic tuberculosis of the apex, without the general appearance of the usual disturbance produced by this disease in the first stage. This class of patients make rapid progress in altitudes ranging

from five to nine thousand feet. The next are patients with more advanced disease, showing hepatization or consolidation, prior to suppuration or disintegration of tissue, even if both lungs are affected, with a pulse constantly at, or slightly above, one hundred, together with a temperature near the same, providing there is no heart complication or serious renal trouble. With proper care and advice the patient improves, and generally rapidly. Cases in which hæmorrhage has been one of the first symptoms, with slight physical evidence of disease; in all such cases I would advise immediate change to the mountain climate, and an altitude not less than five thousand to six thousand feet.

Cases in which the tissue has already yielded, cavity forming, general constitutional disturbance, disease confined to one lung, are frequently saved, disease arrested, and the patient enabled to perform manual labor, or attend to certain kinds of business, earning his own living. I have with me a little pamphlet entitled "What Climate Can Do," which contains a record of personal experience of some of our best citizens who came to Colorado Springs from eight to fifteen years ago, who largely represent this last class I have mentioned, and who are now in good health (comparatively), and attending to their usual avocations. It is prepared by Prof. D. C. Dudley, of the State Institution for the Deaf, Dumb and Blind of Colorado, located at Colorado Springs.

It represents fifty-seven, all of whom are living to-day except the Rev. Mr. Bristol, who died recently from an aggravated form of la grippe. In reference to complications, judgment in all cases is necessary, especially so in heart complications. I have known consumptive patients to improve rapidly who presented organic valvular disease, intermittent pulse and slight hypertrophy, yet those cases are not safe, unless constantly under the care of a regular resident physician. All catarrhal troubles, bronchial disease, except that of positive tubercular deposit, are benefited.

It is generally believed that the higher altitudes are a positive disadvantage in nasal catarrh. If neglected this is true, but the altitude is a great auxiliary to the physician in the proper treatment of catarrh. The secretion peculiar to this disease, and which causes so much deception in lower altitudes in catarrhal affections, is destroyed soon after reaching an altitude of five thousand to ten thousand feet, leaving the diseased membrane clear, dry, and discloses to the physician the extent and condition of the disease, thus enabling him to treat the disease more effectually and secure a permanent cure.

Among the many forms of disease affecting the air-passages, there are none more distressing than asthma, and none so perfectly and permanently relieved. In all cases unaccompanied with heart complications, the relief is immediate, and con-

tinues so while in a mountain climate and altitude not less than five thousand feet.

The advantage derived by a change from a lower moist atmosphere to a higher and dry climate in the disease thus far referred to, is absolute and specific. There are diseases heretofore considered doubtful as to the benefit derived by such change that are now classed among the beneficial. I refer to renal disease, rheumatism, general debility, depending largely upon loss of nerve force, assimilation of food and deterioration of the blood; such patients have been, and are benefited by a residence in these localities. To derive benefit from these altitudes in such diseases, the patient must know something of the dangers as well as the benefits and advantages of high altitudes; the very things advised as the best, may become the most dangerous. For instance, the patient is told that outdoor life is the greatest advantage of the high altitude. He concludes that, able or not, he must go out and walk or ride, or sit in the sunshine or under some shade tree. This may prove very beneficial to some and very dangerous to others. I have met patients walking and climbing hillsides until perfectly exhausted, the perspiration starting from every portion of the body, and several miles from their lodging-place. Rest is absolutely necessary, and the cool, inviting shade of some beautiful tree or thick foliage is selected.

The difference in temperature between the sunshine and the shade is far greater than anticipated by the stranger, and before he is aware, or sufficiently rested to return, a damage is sustained from which he never recovers. Again, horseback riding is one of the most common and most pleasant outdoor exercise in our altitudes, and perhaps the most abused. The morning is fine, inviting and promising; a party is soon formed and a start for the mountains. No thought or preparation is made for the common changes met in these altitudes, occurring so frequently after the noon hour. Some one or more of the party is the subject of incipient phthisis, or perhaps, in the second stage. The return in the afternoon may have to be made through an atmosphere very different from the morning, strong wind, recent shower, etc. The result is the invalid receives a shock, the nervous centres are disturbed, the capillary circulation impeded, congestion quickly follows, and the disease has received an impetus, and the climate and altitude an enemy. These are simple facts, yet the greatest hinderance to immediate and permanent relief within the reach of hundreds who come yearly to our mountain resorts and fail to get well.

With a proper knowledge of the peculiarities of the higher altitude and climate, so as to take advantage of the salutary and sanitary conditions offered by these localities, but few, except in the very last stages of consumption, need fear to come,

and with a confident expectation of being benefited. I will here give one case.

H. B., aged 31, from the State of New York, had several hæmorrhages; weight, 109 lbs., slight consolidation in apex of left lung, cavity in right, expectoration excessive, unable to walk two blocks. I advised his father to return with him at once. He (the young man) plead to stay two weeks; gave my consent, watched him closely—to my great surprise began to improve, in three weeks could walk to my office, a distance of six blocks. At the end of six weeks his father left him, and returned to his home. Improvement continued; at end of three months he had gained 15 lbs., was eating well and had every hope of a permanent cure. Soon after this I saw him very early one morning on a milk wagon taking a ride without an overcoat. This was about the 1st of September last. I urged him to get down and go home at once. His fingers were blue and he said he was much colder than he thought. He began to go down; I telegraphed his father, he returned with him, and in three days after reaching his home he died.

This is only one of the many who, through carelessness, lose their chance to derive benefit and secure the advantages offered to them by high altitudes in the mountain climate. Another abuse is diet, and the time and manner of eating. The effect of this dry rarefied air is to increase the appetite. After proper exercise the patient returns with an anxious desire that his meal will be ready, the craving appetite is satiated with food entirely unfit for the condition manifest in the person, the system is already tired from exercise, the food is rapidly eaten, and the result is faulty digestion and a great disadvantage to the patient. How can we remedy these evils, and secure to this class of invalids the great advantage offered to them by such localities? First, by educating them, giving them proper instructions, see that they consult and follow the advice of some regular resident physician. Send them to the best locality suited to their peculiar and individual condition. In speaking of localities, I again confine myself to experience, and suggest the following places in order named:

Colorado Springs, Denver, Col.; Salt Lake City, Utah; Leadville and Pueblo, Col. I speak of these places without prejudice and for the following reasons:

1. Colorado Springs has the greater advantage from location. Altitude fifty-six hundred feet, six miles from the base of the mountains, just the proper distance to get the full benefit of the natural exhalations of the mountains, producing at this point equability and dryness. The only point that this most important atmospheric condition can be found.

2. On the north it is protected by the great Continental Divide, extending east to the Mis-

souri River, on the west by the mountain range, and open to the east and south. The continuous sunshine, averaging three hundred and twenty-five days to the year, giving an opportunity to invalids to bask in the sunshine winter and summer alike. The temperature is remarkable for such an altitude.

I have a record taken by myself for the past fifteen years, at 6 A.M., 12 M., and 6 P.M. I will here give you the average for the past seven years of January our coldest month, and July our hottest month, mean temperature for each month:

For the month of Jan., 1883, 16.3 above.
 For the month of July, 1883, 69.2 above.
 For the month of Jan., 1884, 16. above.
 For the month of July, 1884, 86.9 above.
 For the month of Jan., 1885, 15.7 above.
 For the month of July, 1885, 82.9 above.
 For the month of Jan., 1886, 14.8 above.
 For the month of July, 1886, 88.5 above.
 For the month of Jan., 1887, 21.3 above.
 For the month of July, 1887, 83. above.
 For the month of Jan., 1888, 18.3 above.
 For the month of July, 1888, 85. above.
 For the month of Jan., 1889, 16. above.

Again, the inviting appearance of the city. Parks laid out with a special view to the comfort and wants of invalids. Our streets entirely free from mud and less dust than any other point. Every home, even the most humble, having inclosed yards, well kept lawns and magnificent shrubbery. I mention this from the well-known fact to our profession, the wonderful influence, inviting home-like environments, have upon this class of patients. We find this knowledge demonstrated to perfection in our hospital grounds everywhere. The surroundings, the most tasty and beautiful. Beautiful shade trees line both sides of our streets throughout our city.

Again, the drives, the magnificent scenery, so varied and changing, at every turn in the mountain pass; the pure water, the medicinal waters of Manitou, the wonderful medicinal Springs lately discovered within the city limits of Colorado Springs, proven by strong and positive test to be a most valuable remedy in renal, stomach, catarrhal and uterine troubles, all tend to make this one of the first and most salutary localities for invalids in the United States, and perhaps in the world.

In the more serious heart complications, Salt Lake City, Utah, offers the safer haven, situated on the western slope of the Rocky Mountains with an altitude of a little over four thousand feet, very similar to Colorado Springs. While it is a fact that all cases of laryngeal phthisis are thought to be aggravated by the stimulating character of the atmosphere, and variability of the climate in high altitudes, I have seen many cases, well marked, improve rapidly at Colorado Springs.

What I have said in regard to Colorado Springs, as a place of refuge for so large and

various a class of invalids, may be said of other places named in this paper so far as they approach in locality, elevation and other prerequisites, so beautifully and aptly commingled by nature at this point. It is easy of access, being a railroad centre. Six roads entering from every point of the compass. The best educational advantage being the proud home of Colorado College, unsurpassed public schools, together with the religious denominations of every name well represented, and most of them possessing fine church edifices, and not a saloon in the city.

In conclusion, I am confident that when the advantage of these localities in high altitudes are thoroughly known and understood by the medical profession, thousands who must die by remaining in other localities, will be sent to these places and restored to health.

CHOLESTEATOMA OF THE EAR.

Read in the Section of Laryngology and Otology, at the Forty-first Annual Meeting of the American Medical Association, at Nashville, Tenn., May, 1890.

BY B. ALEX. RANDALL, A.M., M.D.,

PROFESSOR OF DISEASES OF THE EAR IN THE PHILADELPHIA POLYCLINIC, ETC.

The subject of cholesteatoma has received a considerable amount of attention on both sides of the Atlantic, yet seems one to which further attention can be profitably devoted. Writers on pathological anatomy are apt to be silent on this point, as though true cholesteatoma were a very rare tumor, met almost solely on the brain membranes; or else they strongly combat the claim that the ear is a frequent seat of the growth. Aural surgeons, on the other hand, too often regard these cases as only desquamative inflammations, and draw no distinction between mere aggregations of exfoliated epidermis and the true pearly tumor. The reason is not far to seek. Desquamative conditions are frequently met, and are open to ready study; cholesteatomata are generally buried in the bony cavities, and are removable only piecemeal during life, and are then nothing more than epidermal shreds, almost indistinguishable from any other flaky masses.

Waiving in great part the question of how often the cholesteatomatous masses met in clinical work are to be viewed as tumors in the strictest sense, I would like to draw attention to their frequent occurrence and their serious importance. A recent statement of Virchow's fittingly opens the discussion: "Of the fatally-ending cases of middle-ear suppuration among us, nearly one-third are to be ascribed to this form of growth,"¹—a statement that for force and authority could hardly be surpassed, and needs no additional citation of authorities. Having had no personal ac-

quaintance with fatal cases of cholesteatoma, not having met them in the few fatal ear cases (generally with meningitis or brain abscess) which I have studied post-mortem, I will turn to the question of its clinical occurrence in the non-fatal cases, which make up in frequency for their presumably lesser gravity. Many varieties of the condition will be met, differing widely in their characteristics, and to this is due the varying names that have been applied, and the divergent views entertained as to their nature. For instance, a colored woman of 50 years, came a year since to the Polyclinic complaining of deafness, tinnitus and some vertigo, growing steadily worse for some months. Both auditory canals were blocked with yellowish, horny masses, which were with much difficulty removed entire. The record showed that similar collections had been removed four years previously, and the diagnosis then made of desquamative otitis externa, corresponds with cases published by Buck, Pomeroy and others. Both drum membranes had been previously destroyed by long-standing suppuration, probably with caries, and the exposed tympanic cavities were lined with cicatricial tissue of the same pearly lustre as the material removed from them. The meatus walls were not free from traces of exfoliating epidermis, but it was very evident that the plugs were derived from within the tympana, as the desquamation of the pearly lining. The connection of the inmost part of the mass to the tympanic wall was partly organic, and broken only by force; and no clear distinction could be made between the most recent portion of the removed mass and that which still covered the promontory, and bled when lightly scratched. The absence of suppuration made the study easy in this instance.

More often pus is present when the case comes for treatment, and the condition is thereby much obscured. Such was the case of an inmate of the Deaf and Dumb Institution, Lizzie W., æt. 9, seen May 12, 1888. Cleansing of the discharge from the right meatus showed a large destruction of the drum membrane, with apparent loss of all three ossicles, and stuffing of all the depressions with white, flaky epidermis. This was removed with great difficulty by syringe, probe and forceps in alternation, and it is very doubtful if the attic and antrum have ever been emptied. A dark point the size of a pin's head, halfway out the posterior wall of the canal, called for investigation, and proved the summit of a similar epithelial mass lodged in the neighborhood of the antrum. The small opening in the skin was stretched in dragging forth the material within, until it revealed an opening in the bony wall through which a large pea might pass; and the cavity within, when finally emptied, was found to measure nearly 15 millimetres in each dimension. The laminated masses of epidermis removed from it would have filled a drachm vial. Only

¹ Trans. Berlin Med. Soc., 1889, p. 58, Arch. f. Ohrenh., xxviii, October 18, 1889.

after numerous sittings was approximate completeness attained in the cleansing. Then suppuration promptly ceased—to recur once or twice in the past year, when the collection of epithelium had formed anew.

A still more notable case was that of a fellow-pupil in the same institution, Susan C., æt. 14, who was brought with suppuration of both ears. The greatly altered tympanic cavities were so tightly packed with pearly epidermis, that only after six or eight sittings of half an hour's duration, when forceps, probe, curette and syringe were used to the exhaustion of both patient and surgeon, were the tympana emptied. Drum membranes and ossicles were gone on each side, and a glazed cicatricial tissue covered the visible surfaces. At the next visit the right ear was dry; but on the left some suppuration continued, a few epidermal flakes were visible, and the probe and curved forceps drew away a good deal more of the same material from the attic and the entrance to the antrum. Although now clean, as far as sight and touch could determine, continued syringing was ordered, unless the ear remained perfectly dry. This was carried out for three days, and when next seen, there was found a cholesteatomous mass filling the auditory canal, and measuring on removal $26 \times 8 \times 6$ mm. It was doubtless swollen by imbibition of fluid, but after drying was still nearly as large in each dimension; and one could but wonder where there had been room in the temporal bone for it to hide itself. Suppuration at once ceased, and has recurred only once or twice for short periods, and on this side alone.

So large a proportion of the deaf-mute patients whom I have treated presented this condition in greater or less degree, that I now expect it in the old suppurative cases, and distrust any negative findings until after repeated examination; and I always order the cases showing it to return within a couple of months, even if the ear remains apparently free from any suggestion of trouble. Some of them do so, and renewed collections are generally found; others suffer a renewal of the otorrhœa before the time set for their return, and the removal of the fresh collection is followed by prompt cessation of the discharge.

The first notable case of this kind which I met was Margaret M., æt. about 35, who came in January, 1883, to the Episcopal Hospital. She was very deaf, and spoke a scarcely intelligible German dialect, so that little was learned of the history or subjective symptoms, except that she suffered much with dizziness. Examination showed the left canal clear, and the drum membrane largely destroyed and altered almost past recognition by thickening and adhesions, evidently the results of old, long-standing suppurative disease. On the right the canal was blocked with a mass, apparently cerumen, and its removal showed a

condition of the deeper structures closely similar to that on the left. The endeavor to inflate the tympanic cavities probably failed, but some relief seemed to have been obtained. At her second visit, a scale of dark material was still present on the posterior wall of the right meatus, and it was removed as a matter of principle, since several cases of sinus in such a situation had recently been seen. A large sinus was revealed, from which an astonishing mass of material was removed, most of which resembled moist buckskin, but the central portions of which were dry, opalescent, and closely laminated. The walls of the cavity were moist with a pus of strong odor, having a pungency rather characteristic of cholesteatomatous masses. Further relief followed this clearing. At a subsequent visit, the walls of the cavity were found dry, smooth and firm except in the innermost part. The portions visible through the opening in the meatus wall were pale, cicatricial and glazed. The opening into the wall of the canal was found to measure 12 mm. in each dimension; and the cavity in the mastoid extended from the level of the meatus floor to 12 mm. above its roof, and a curved probe could be passed 15 mm. directly backward, and its tip could be brought so far outward as to show that little bone was left between it and the skin. We had therefore a cavity some 20 mm. in height, 15 mm. antero-posteriorly, and extending from near the surface of the mastoid at least 30 mm. inward. Two points were found up and in where the probe met no bony resistance, and pressure caused vertigo and faintness, probably from pressure on the meninges. There was some further improvement in hearing, and less dizziness; but advance soon ceased, and as she was near confinement, she dropped out of sight. The wonder was in this case, that there was room in the mastoid for such a cavity; and there was probably here a beginning of that encroachment of the mass upon the cranial cavity, which has been so marked in some of the fatal cases described.

In a closely similar case more recently seen, the woman was seriously ill, with high fever, severe pain, and much mastoid tenderness on the right; but the acute symptoms were in large part due to a developing quinsy. Polypoid masses filled the meatus, and by their recurrence after removal, obscured the condition; but enough epithelial flakes were removed at the first sitting to indicate the probable nature of the trouble. Cleansing with syringe, probe and forceps, was pushed as far each time as the patient's condition permitted, and when last seen, two months later, the large cavity above and behind was clear and dry, except for the trace of discharge which came from some granulations on the inner lip of the sinus, where the polypus had formerly grown around a small carious point. Instillation of warm water showed that the capacity of the cav-

ity and canal was at least double that of the normal canal upon the other side. A fraction of the hearing had been gained, and the patient considered herself well.

In each of the cases cited, the formation was quite surely secondary to destructive suppurative inflammation; and the cases are extremely few where this can be excluded, and the growth regarded as primary. Yet such cases have been reported by Lucae, Kuhn, and others, as occurring in the mastoid without perforation or other evidence of previous inflammatory trouble; and similar growths have occurred independently upon or in the drum membrane. Politzer has found small pearly bodies in the mucous membrane of the promontory, clearly comparable to those usually met in epithelioma, and probably ready to develop, under favoring conditions, into the conspicuous masses under discussion. Primary cholesteatoma of the ear must, therefore, be accepted as a reality, and as probably less rare here than in other situations. Secondary cholesteatoma, varying from pearly tumors, distinguishable only by their nuclear mass of caseous matter, if at all, from the primary, to mere desquamative masses of indeterminate form and structure, are of quite frequent occurrence. Toynbee noted ten such tumors, aside from epidermal collections in the external meatus, among 1,013 diseased temporal bones, and all observers of wide experience confirm such findings. Their importance lies largely in their tendency to form insidiously in cavities, where they are out of sight and reach, and to maintain and aggravate the inflammatory processes of which they are usually the results. Continued growth leads to absorption by pressure of the surrounding walls, widening the cavities and laying open the important adjacent fossæ. Huge tumors of this sort have been found invading the cranial cavity, and leading to fatal brain disease. The lateral sinus has been laid open by them, and thrombosis or hæmorrhage has ensued, with fatal outcome; or septic osteitis has been set up, with resulting pyæmia. These are their more direct results: they constantly interfere mechanically with the drainage in suppurating cases, increasing the danger, extending the destruction, and forming most serious obstacles to successful treatment. Their removal is often very difficult, and their recurrence probable and dangerous; so the claim with which this paper opened, that they are worthy of most careful study, seems fairly sustained. Awkward as is the name cholesteatoma, its employment in this connection has no small value; for it better suggests the importance and tendency of the pathological condition than does the misleading, if correct, term, desquamative inflammation. Many of the text-books regard these conditions as usually belonging merely to the external auditory canal; and I believe that many students have, like my-

self, winnowed the instructive from the misleading in these descriptions only after some trying personal experiences have furnished a much needed key. That there may be others to whom the subject is almost unknown, is my reason for placing upon record these incomplete notes.

DIAGNOSIS AND OPERATIVE TREATMENT OF GUNSHOT WOUNDS OF THE STOMACH AND INTESTINES.

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(Continued from p. 320.)

Hydrogen Gas Test as Applied in the Diagnosis of Perforating Gunshot Wounds of the Abdomen.

I have up to the present time applied this test in over one hundred cases of gunshot wounds of the abdomen intentionally produced in dogs, and in every instance where the stomach or intestine was wounded, the visceral complication was positively diagnosed before the abdomen was opened; hence I have no reason to make any retraction from the claim previously made, that the test is infallible in making a positive differential diagnosis before abdominal section is made, between a simple penetrating gunshot wound of the abdomen and a penetrating wound complicated by visceral wounds of the gastro-intestinal canal.

In all these experiments the animal was strapped on one of Pasteur's operating tables, the abdomen shaved, and after the animal was fully under the influence of an anæsthetic, the shooting was done with a 32-calibre revolver. Rectal inflation of hydrogen gas was practiced immediately after the shot was fired, and after its diagnostic indications were carefully studied and noted, the abdomen was opened and its contents examined for visceral injuries. In all cases where the colon was perforated, inflation could be done under very slight pressure, as the gas readily escaped into the peritoneal cavity and from there through the wound of entrance, where it was ignited as it escaped. If the perforation of the intestine was located above the ileo-cæcal valve, more pressure was required, as the resistance offered by the ileo-cæcal valve had to be overcome before the small intestine could be inflated. I will cite only one of the many experiments.

"*Experiment 65.*—Dog, weight twenty-five pounds. Under full anæsthesia the animal was shot in the abdomen, the bullet passing nearly in a transverse direction through the abdominal cavity, an inch and a half below the umbilicus,

the points of entrance and exit being midway between the linea alba and spine. Rectal insufflation of hydrogen gas made under very low pressure was followed by rapid distension of the abdomen, an occurrence which furnished strong evidence that the gas escaped through a perforation of the colon into the peritoneal cavity. The gas escaped at once from the wound of entrance and when ignited burned in a steady blue flame. On opening the abdomen, gas escaped from the peritoneal cavity, the small intestine was empty, and only a small quantity of gas was found in the colon. The following intraperitoneal injuries were found: Four perforations of the duodenum, two of the jejunum, and one of the cæcum, also a perforation nearly through the center of the left kidney, laceration of the receptaculum chyli, and a number of perforations in the mesentery. The bullet was found between the left kidney and the abdominal cavity."

In this experiment, as in all others of a similar nature, the gas escaped through the lowest perforation and accumulated in the peritoneal cavity until the intra-abdominal pressure became sufficient to force it through the perforation in the abdominal wall.

In using the hydrogen gas test in the diagnosis of perforating gunshot wounds of the abdomen it is of the greatest importance to observe carefully the effects of the inflation in changing the form of the abdomen. If the colon is perforated the gas will escape readily through the opening in the bowel under low pressure, probably not more than quarter to half a pound to the square inch. As the gas accumulates in the free peritoneal cavity the abdomen is at once uniformly distended and the free tympanites can be proved by absence of liver dullness. Even if gas should not escape through the external wound, its presence in the free abdominal cavity would be sufficient proof of the existence of intestinal lesions and would consequently be a convincing argument for the necessity of laparotomy.

If no intestinal complications are present, or if the visceral wound is located above the ileo-cæcal valve, this becomes apparent after insufflation has progressed sufficiently to distend the entire colon, a condition which may be known to be present from the increased width of the abdomen and the area of tympanitic resonance over the distended organ. Auscultation over the ileo-cæcal region will enable the surgeon to tell when the resistance of the ileo-cæcal valve has been overcome, as this will be announced by a distinct and audible gurgling or blowing sound as the gas rushes from the colon through the opening caused by the mechanical separation of the margins of the circular valve into the ileum. As the loops of small intestine one by one become distended from below upwards with the gas, the hypogastric region first becomes prominent and tympan-

itic, and if no perforations are present, the abdomen becomes barrel-shaped from the distension due to dilated intestines. In this condition the liver is lifted upwards by the distended intestines, the dullness is not effaced as in free tympanites, but the area of dullness is carried higher up.

If the small intestine is perforated some distance from the ileo-cæcal region, the limited distension and tympanites in the hypogastric region caused by the distended intestinal loops below the perforation will soon be displaced by the free tympanites resulting from the escape of gas into the peritoneal cavity.

If the rules laid down in this paper for the treatment of penetrating gunshot wounds of the abdomen are followed, free tympanites will never occur, as the gas entering the peritoneal cavity from an intestinal wound will escape at once through the perforation in the parietal peritoneum which has previously been exposed by incision through the abdominal wall down to this point.

A Clinical Contribution in Testimony of the Value and Reliability of the Hydrogen Gas Test in the Diagnosis of Penetrating Gunshot Wounds of the Abdomen.

The following six cases of penetrating gunshot wounds of the abdomen have come under my personal observation since I have demonstrated experimentally the value of rectal insufflation of hydrogen gas in the diagnosis of traumatic perforations of the gastro-intestinal canal. In the treatment of these cases I relied implicitly upon the indications derived from the test.

Case 1.² Gunshot Wound of Chest and Abdomen; Double Perforation of Stomach; Laparotomy; Death from Hæmorrhage and Shock.—C. H., a man, seventy-two years of age, was brought to the Milwaukee Hospital by the police patrol, at 7 A.M., July 9, 1888, for a suicidal, bulldog pistol (44-calibre), wound of the chest, inflicted about two hours previously. Pistol held in the left hand, as ascertained from the patient and confirmed subsequently by examination of the direction of the bullet. The patient stated that he had pointed the pistol toward the heart.

Examination, 7 a.m.—Wound of entrance situated in the sixth left intercostal space, surrounded by emphysema. Seventh rib fractured at junction of cartilage and bone. No wound of exit. Patient conscious; complains of severe pain in the epigastric region, increased by pressure. Pulse rapid and weak; vomits and expectorates blood; area of liver dullness diminished. Percussion and respiratory sounds normal. No evidence of hæmo- or pneumothorax.

9 a.m.—Flexible tube introduced and stomach inflated with hydrogen gas from a four gallon rubber balloon. Gas escaped and ignited at the wound of entrance with an audible sound. Field of operation thoroughly disinfected. Patient

etherized and laparotomy made by incision from the ensiform cartilage to the umbilicus. The omentum and stomach were drawn forward into the wound. A large perforation, about one and a half inches in length (the large size being due to the oblique direction of the bullet), was found in the stomach, midway between the pylorus and the cardiac extremity, near the greater curvature. Stomach partially filled with coagulated blood. With the index finger introduced through this perforation, another was detected in the posterior wall near the lesser curvature. An opening was made in the lesser omentum, but on exploration of the posterior surface of the stomach, the second perforation could not be found. The blood-clots were removed from the stomach by irrigation through the lower wound.

For the purpose of finding the second wound the stomach was again inflated with hydrogen gas which was injected directly through the perforation. The gas escaped through the posterior opening in a continuous stream, which made it easy to locate the second perforation. The omental opening was enlarged by tearing, and the perforation was discovered on the posterior surface near the lesser curvature and close to the cardiac orifice. Great difficulty was experienced in dragging the stomach sufficiently forward and downward into the abdominal incision to enable me to suture the perforation, which was two inches in length. It was closed by a continued sero-muscular suture, the anterior perforation by Czerny-Lembert sutures. A large quantity of fluid and coagulated blood was found behind the stomach, in the region of the pancreas. Copious hæmorrhage had evidently taken place at both perforations as well as in the post-peritoneal space. The visceral wounds indicated that the bullet had passed from above downward, backward, and to the right.

At this stage of the operation the patient collapsed from the continued effect of shock and hæmorrhage. The foot of the table was elevated, external heat applied, and a saline infusion to the amount of fifteen ounces was made into the left median basilic vein. Brandy was injected subcutaneously and the faradic current applied, but all these means proved fruitless, and the patient died from the combined effects of hæmorrhage and shock before the external wound could be sutured.

After death the abdominal incision was closed and inflation of hydrogen gas, *per rectum*, made to test the condition of the sutured perforations. A stomach tube was introduced and the gas, under a pressure of less than a pound to the square inch, was forced through the entire gastrointestinal canal and escaped through a small glass tube which had been inserted in the distal end of the stomach tube, where it was ignited and burned in a continuous flame as long as the

pressure upon the rubber balloon was continued. This showed that both visceral wounds had been effectually closed and that no other perforations existed.

The necropsy, which was made at once, revealed that the bullet had entered the chest through the seventh rib near the junction with the costal cartilage, causing a comminuted fracture. The pleural cavity at this point was obliterated by adhesions. The bullet passed through the lower lobe of the left lung, after which it perforated the diaphragm and entered the abdominal cavity, passing through the cardiac extremity of the stomach from above downwards. Liver and spleen intact, upper margin of tail of pancreas lacerated. Bullet passed to left of the aorta, entered the left crus of the diaphragm, fractured the last rib at the neck and perforated the spinal column, entering between the last dorsal and first lumbar vertebræ, escaping through the body of the latter, fracturing at the same time its right transverse process. The bullet was found in the subcutaneous connective tissue in the right lumbar region. The spinal canal was opened by the bullet in its passage through the vertebra, and loose fragments of bone lay in the canal. The membranes were intact and the cord itself not injured.

Remarks.—The location of the wound of entrance in this case did not indicate that the bullet had entered the abdominal cavity, unless the revolver was held in the left hand; in that case, if directed toward the heart, the track of the bullet would necessarily be downward; backward and from left to right. Taking it for granted that the bullet took this direction, it would still have been possible for the stomach to escape injury. The circumscribed emphysema around the external wound and the hæmoptysis, as well as the location of the wound, left no doubt that the lobe of the left lung was injured. The absence of hæmothorax and pneumothorax was explained by the post-mortem, as the left pleural cavity was found completely obliterated by adhesions. Under a pressure of not more than half a pound to the square inch, the hydrogen gas was forced from the stomach through the external wound, where it was lighted and burned in a large continuous flame until it was extinguished by compression with a large moist sponge, thus demonstrating positively the existence of perforations in the stomach.

Although the stomach can be inflated by rectal insufflation of hydrogen gas, the more direct method by using a stomach tube should have the preference in cases of perforating gunshot wounds of the abdomen where from the course of the bullet there exists a probability, or even a possibility, that this organ has been injured. Dr. Ohage's case serves as a warning to apply the test again even after suturing two perforations made by one

bullet passing transversely through this organ, for the purpose of detecting a third perforation should this exist.

*Case 2. Gunshot Wound of the Abdomen; Twelve Perforations; Laparotomy; Recovery.*³—J. J., a young man sixteen years of age, was out hunting on Sunday, September 9, 1888, with some companions, one of whom accidentally discharged his 22-calibre rifle at a distance of about one hundred and fifty feet, the bullet striking the patient in the abdomen. The injury caused but little pain, and immediately after the accident the patient walked about forty yards to a farmhouse where he was placed in bed. From there he was conveyed on a cot, in a farmer's wagon, to the hospital, some six miles distant. The accident occurred about noon, and he arrived at the hospital at 3 P.M.

Examination.—Patient complains of considerable pain in the abdomen; pulse 80 and soft; his general appearance indicates no serious injury. On undressing him, a bullet wound, with omentum protruding, was found two inches to the right of the middle line, and on a level with the anterior superior spine of the ilium. Left iliac region dull on percussion; and in right a cracked-pot sound was elicited on percussion. A rectal enema was administered, and was followed by a free faecal discharge, without admixture of blood. (On washing the faeces afterward the bullet was found.)

Operation.—Ether, as an anæsthetic; thorough disinfection of abdominal wall; rectal insufflation of hydrogen gas, followed by the escape of bubbles of the gas, within a few seconds, at the wound of entrance, into which had been placed a hæmostatic forceps, the blades separated so as to render the canal patent. The gas was lighted, and after thorough cauterization of the wound by the flame it was extinguished by the application of a wet sponge.

Laparotomy by median incision, eight inches in length from pubes upward. About a pint of fluid blood in the peritoneal cavity, and hæmorrhage continuing from mesenteric veins at two points of perforation on the mesenteric side of the bowel, and to a less extent from perforations of the mesentery; arrested by ligating *en masse*. Within a distance of four feet, near the middle of the ileum, were found ten perforations, two of which were at the mesenteric border; also four perforations of the mesentery. Another perforation of the bowel was found within four inches of the ileo-cæcal valve on the convex side of the intestine, making so far eleven in all. All were closed by Czerny-Lembert sutures. At two points the perforations were so close together that it was found necessary to invert half the circumference of the bowel on the convex side, thus producing considerable narrowing of its lumen.

Two hours had been consumed in arresting the hæmorrhage and closing the eleven perforations, and the patient at this time had become pulseless, and yet it was deemed absolutely necessary to determine beyond all doubt if any more perforations existed by repeating the rectal insufflation of hydrogen gas. On repeating this test it was found that gas escaped freely from the pelvic cavity, without reaching the ileo-cæcal region, showing that at least one more perforation was below this point. The sigmoid flexure was brought into the wound and compressed between the index finger and thumb. Insufflation was again followed by escape of gas, demonstrating that the perforation was below this point. Inch by inch the bowel was examined by this method in a downward direction, until a perforation was found in the anterior portion of the rectum at a point where the peritoneum covering its anterior wall is reflected upon the bladder. The perforation was rendered accessible to direct treatment by an assistant making traction on the colon and by keeping the margins of the wound well retracted by means of a pair of Hegar's retractors. It was closed by five Lembert sutures, with the greatest difficulty, on account of its deep situation and the inadequate light, which was furnished by two candles. From the perforations in the ileum there escaped pieces of green apples and intestinal contents, and from that in the rectum fluid faeces.

The peritoneal cavity was freely irrigated with a one-third of 1 per cent. solution of salicylic acid. After completion of the peritoneal toilet, a Keith's glass drain was introduced in such a manner that the distal open end was placed opposite the sutured rectal wound, and the abdominal incision closed in the usual manner. Whiskey was freely administered hypodermatically during the operation and after its completion, as the patient remained pulseless for half an hour. Time of operation two hours and a half. The foot of the bed was elevated and dry heat applied to the extremities.

Reaction was established slowly, but although the temperature did not rise much above normal. The pulse remained between 120 and 144 for two days, and during this time the patient was delirious. After the second day pulse and temperature nearly normal. The drainage tube was emptied every three or four hours by aspiration with a syringe, to the nozzle of which a piece of rubber tubing was fastened. Second day normal passage from the bowels. On the fourth day a faecal fistula formed at the site of drainage, which closed ten days later.

The patient left the hospital completely cured six weeks after his admission, and has remained in perfect health ever since.

Remarks.—The subjective symptoms in this case four hours after injury, and after transport-

³ The Medical News, November 10, 1888

ing the patient a distance of six miles, furnished no indications whatever of the extent of the visceral injuries which were found and treated during the operation. The rectal insufflation of hydrogen gas at once rendered the diagnosis accurate and positive, and pointed out the necessity of abdominal section. Eleven perforations were found and sutured without much difficulty, but the last perforation, in the deeper portion of the pelvis, could not have been detected by any other means of diagnosis short of rectal insufflation. Had this perforation been overlooked, death from septic peritonitis would have been inevitable, as considerable fæces had escaped through the perforation into the peritoneal cavity.

Drainage was established in this case, not only on account of the fact that fæcal extravasation had taken place, but also for the reason that, owing to the difficulty in gaining access to the rectal wound, I feared that the suturing was not as perfect as it should be, and by proper drainage I wished to guard against possible extravasation into the peritoneal cavity. Subsequent events proved the necessity of this precaution.

Case 3. Perforating Gunshot Wound of Abdomen; four Perforations; Peritonitis; Laparotomy; Death.—J. E. (case of Drs. Gudden, Steele, and Gordon, of Oshkosh), eighteen years of age, was out target-shooting with a companion, who, while raising his 22-calibre rifle to his shoulder, accidentally discharged it; the bullet struck the patient in the abdomen. He was about forty feet distant, and almost directly facing his companion. When first seen by Dr. Gudden, within half an hour after the injury was received, he was suffering pain in the abdomen, was pale, covered with cold, clammy perspiration, and vomited frequently. He was placed in a carriage and conveyed to his home, a distance of two miles. During the journey, the severity of the abdominal pain was so increased by the motions of the carriage as to necessitate repeated stops.

I saw the patient, with the above-named physicians, October 9, 4 A.M., twelve hours after the accident.

Examination.—The wound of entrance was found to be at the outer margin of the left rectus muscle, about one inch below the level of the umbilicus. Abdomen dull on percussion in left iliac region, pulse 140, temperature 100° F. Penetration of the abdomen was proved by the introduction of a grooved director, which was left in place during the insufflation of the hydrogen gas.

The patient was placed under the influence of chloroform, and during the operation the narcosis was maintained with ether. The abdomen was thoroughly disinfected, and rectal insufflation of hydrogen gas practiced to ascertain if any perforation of the intestine existed. Under a pressure of about half a pound to the square inch, and the use of one-quarter of a gallon of gas, in a

few minutes the gas escaped along the groove of the director, and, on applying a match, ignited as it escaped. The flame was now extinguished by a moist sponge, and the abdomen opened by a median incision, five inches in length, extending from the umbilicus to near the pubes.

On exposing the peritoneum at the lower angle of the incision, through this membrane there was observed a structure closely resembling an over-distended bladder. That this structure was a distended bladder was improbable, as the boy had urinated before the anæsthetic was administered. The peritoneum was carefully incised between two forceps and divided upon a grooved director to the same extent as the external incision, and it was then discovered that what appeared to be an over-distended bladder was a coil of small intestine distended with blood to twice its normal size. The whole pelvic cavity was found to be filled with fluid blood. On withdrawing the small intestine, five perforations, within a distance of three feet, near the junction of the jejunum and ileum, were found; four occurred in pairs on the lateral aspect of the bowel, and one at the mesenteric attachment. All the perforations were disproportionately large to the size of the bullet, and would easily admit the tip of the index finger. The intestine, at the point of injury, was covered with a thick layer of recent plastic lymph, and the parietal peritoneum presented all the evidences of a beginning diffuse septic peritonitis. The intestine, which was over-distended by blood-clots for about three feet, was emptied and irrigated with a one-third of one per cent. solution of salicylic acid, which was used for constant irrigation during the entire time required to suture the perforations, which were closed by Czerny-Lembert sutures.

Further examination disclosed four perforations of the mesentery, from two of which quite profuse venous hæmorrhage was still going on. The hæmorrhage was arrested by ligature *en masse*, by passing a needle, threaded with fine silk, through the entire thickness of the mesentery, on either side of the perforations.

Rectal insufflation of hydrogen gas was repeated, so as to ascertain if any other perforations existed, and the gas, after it had been gently forced beyond the highest perforation, was made to traverse the balance of the entire intestinal canal by drawing forward loops of the intestine and returning them as examined without further insufflation. This procedure was found entirely satisfactory and practical, as the gas, on account of its low specific gravity, readily entered the highest point in the prolapsed intestinal loop.

The abdominal cavity was irrigated with salicylic acid solution, numerous coagula removed, the toilet completed, a glass drain introduced into the pelvis, and the abdomen closed.

Duration of operation two hours. Patient col-

lapsed, pupils greatly dilated, and almost pulseless in spite of repeated hypodermatic injections of brandy, which were administered when signs of collapse became apparent, throughout the operation. Enema of a teacupful of warm water and two ounces of brandy. Foot of bed elevated and external dry heat applied.

In an hour and a half he rallied somewhat from the operation, but again sank and died at 3 P.M., eight hours after the completion of the operation.

Post-mortem eighteen hours after death (Drs. Steele, Gudden, and Gordon). Circumscribed peritonitis present at the time of operation, now diffuse; very little fluid in abdominal cavity; several small blood-clots in vicinity of transverse colon. The perforations were all securely closed, and the bullet was found in the soft tissues to the right of the spinal column, between the fourth and fifth lumbar vertebræ, and near the ascending colon. The bullet, though only of 22-calibre, was oblong, and may thus explain the unusually large size of the perforations.

Remarks.—This case, compared with the foregoing, furnishes a strong argument in favor of early operative interference in cases of gunshot or stab wounds of the abdomen in which the existence of visceral lesions can be demonstrated by rectal insufflation of hydrogen gas. In the first case, although twelve perforations were found and sutured, and faecal extravasation had taken place, no evidences of peritonitis were found, and the patient recovered. In this case twelve hours intervened between the time the injury was received and the treatment by laparotomy, during which time a septic peritonitis had developed, the extension of which the operation did not arrest, and from the effects of which the patient died.

Case 4. Penetrating Gunshot Wound of Abdomen; Hydrogen Gas Test used with Positive Result; Laparotomy; Two Perforations of Ascending Colon; Death from Peritonitis on fifth Day.—This patient, a boy fourteen years of age, was shot in the abdomen by the accidental discharge of a 22-calibre rifle in the hands of his playmate, who was standing a few feet from him. The accident occurred September 23, 1889, at 5 o'clock in the afternoon. The physician who was first called probed the wound and ascertained that the bullet had entered the peritoneal cavity, and sent the boy at once to the Milwaukee Hospital for surgical treatment. No shock and no evidence of internal hæmorrhage.

Two hours later, after the necessary preparations had been made for laparotomy, the hydrogen gas test was applied, and as this yielded a positive result, the abdomen was opened at once. The wound of entrance corresponded with the umbilical depression, and from the position of the patient at the time the accident occurred and from the direction in which the bullet was discharged, I had reason to believe that the ball passed through

the peritoneal cavity from the wound of entrance in a direction from left to right.

The abdominal cavity was opened by a median incision extending from the wound of entrance to near the pubes. A small quantity of hydrogen gas was found in the peritoneal cavity. The colon was moderately distended, and I had no difficulty in detecting a perforation about eight centimetres above the ileo-cæcal region. The visceral wound was on the same level with the parietal wound and on the side of the bowel towards the umbilicus. I expected to find the second perforation at a point opposite and on the same level, but the most careful examination failed to reveal its existence. I could find no extravasation or discoloration which would have assisted me in locating the second visceral wound, of the presence of which I was convinced.

To locate the second perforation I resorted to the following procedure: The colon was compressed above and below the perforation that I had found, and direct insufflation with hydrogen gas was made through the visceral wound. The gas escaped from behind the bowel, and the continued escape led me at once to the wound, which was located between the serous layers of the mesocolon and was completely hidden behind the anterior peritoneal layer. No faecal extravasation was found before or after the insufflation. Nevertheless it was deemed advisable to flush the peritoneal cavity with warm sterilized water. After testing the remaining portion of the intestinal canal for additional perforations, the visceral wounds and the external incision were closed in the usual manner. A Keith's glass tube was inserted to secure drainage. The case progressed favorably for thirty-six hours, when evidences of diffuse septic peritonitis developed, which rapidly increased in intensity until the fatal termination, the fifth day after the operation. No post-mortem.

Remarks.—As the whole length of the gastrointestinal canal was treated for additional perforations at the time of the operation, and none were found, we must take it for granted that the fatal peritonitis was caused by infection through the visceral wounds which were sutured, or through the operation wound, or possibly, the septic microorganisms were conveyed into the peritoneal cavity by the bullet. The most interesting feature in this case is the procedure which was employed to discover the second perforation. The ordinary methods of examination proved utterly inadequate to discover the second visceral wound. Direct insufflation through the perforation which had been found, at once revealed the existence and location of the second visceral wound. Before the perforations were sutured, the colon below the wound was emptied of its gas, and the remaining portion of the gastro-intestinal canal was tested for additional perforations by direct insufflation through the anterior visceral wound.

This modification of the ordinary method of applying rectal insufflation of hydrogen gas in the diagnosis of perforations of the gastro-intestinal canal offers great advantages in that it prevents undue distension of the intestines, and when properly used renders it almost impossible to overlook a perforation sufficiently large to require direct surgical treatment. In cases of multiple perforations of the intestinal canal the lowest perforations can be readily located by rectal insufflation, but the remaining perforations should be pointed out by direct insufflation through the visceral wounds, taking the precaution to empty the sutured portion of the bowel of its gaseous contents, and after disinfection, if this becomes necessary, to return it into the abdominal cavity, thus preventing undue distension and extensive eventration.

Case 5. Penetrating Gunshot Wound of Abdomen; Inflation of Stomach and Colon with Hydrogen Gas; Foreign Body in Peritoneal Cavity; No Visceral Injuries Demanding Surgical Treatment.

Recovery.—W. G., boy six years of age, was shot while he was standing on a box behind a saloon counter, the umbilicus reaching a little above the level of the counter. A bulldog pistol of 38-calibre was accidentally discharged at a distance of four feet from him. The bullet struck the counter to his left and in front, glanced, and penetrated the abdominal wall half an inch to the left of the linea alba and an inch and a half above the level of the umbilicus. After the shooting, the boy walked into an adjoining room without assistance, and the fact of his being seriously injured was only discovered on removal of his clothing. No shock. The patient complained of pain in the abdomen and vomited once, an hour and a half after the accident. The patient had eaten a hearty supper shortly before he was shot. No blood in the material vomited. Dr. Jürgens, the attending physician, applied a temporary antiseptic dressing over the wound, and administered small doses of morphia and atropia hypodermatically.

The accident occurred at 7 P.M., March 18, 1890, and on my arrival, seven hours later, his condition was as follows: Pulse 110 and full; face flushed, and although very quiet, complains of pain in the abdomen; liver dulness normal, both as regards location and extent. Wound of entrance plugged with omentum. The presence of omentum in the wound left no doubt that the bullet had entered the abdominal cavity, and from the location of the wound of entrance, and the probable course of the bullet from left to right and from below upward, I suspected that either the transverse colon or stomach had been perforated. Preparations were at once made for a laparotomy, so that in the event that the hydrogen gas test should yield a positive result the necessary operation should be done at once.

After the patient was thoroughly under the influence of chloroform, rectal insufflation of hydrogen gas was made, but when the colon had become fully distended it was discovered that the rubber balloon was leaking badly, consequently through insufflation could not be made. The insufflation of the colon, however, showed that this portion of the intestinal canal had escaped injury. The stomach was now inflated, and as this organ was fully distended without any leakage taking place, I was satisfied that no perforation existed. It still remained to determine whether the upper portion of the small intestine was injured, consequently an incision three inches in length, in the line of the wound of entrance, was made for the purpose of exploring the upper portion of the abdominal cavity for visceral injuries which might not have been revealed by the insufflations. A small shred of underclothing was found between the omentum and abdominal wall, near the track made by the bullet. After displacing the omentum upwards and to the left, a number of feet of the small intestine from the pylorus downward were examined with negative results. After a brief search, the bullet was found embedded in the space between the tenth and eleventh ribs on the right side, half way between the costal arch and the spine. The bullet was extracted through an external incision after pressing it outward with the index finger in the abdominal cavity. Only a small quantity of blood was found in the abdominal cavity. One external incision was closed in the usual manner, with the exception of a space for a small strip of iodoform gauze, which was inserted in the track of the bullet as far as the peritoneum. Ordinary aseptic dressing, retained in position by broad strips of adhesive plaster. The patient recovered promptly from the immediate effects of the operation, but soon developed symptoms of circumscribed peritonitis which lasted for a number of days, after which he recovered rapidly and completely. The external wound suppurated for a short time.

Remarks.—This case is of great interest, as it was demonstrated at the time of operation that the bullet had passed at least six inches obliquely through the upper portion of the abdominal cavity without inflicting any visceral injuries which required surgical treatment. The insufflations, although imperfect on account of a defective rubber balloon, proved of great value, as they made a direct examination of the stomach and colon for perforations unnecessary. The bullet undoubtedly passed between the transverse colon and the pyloric extremity of the stomach on its way from the point of entrance to the tenth intercostal space.

It is a comparatively easy task to find the perforations after the abdomen has been opened, if they are located in the small intestine, but perforations of the stomach and colon are often over-

looked during an ordinary examination, while their existence in these localities is promptly and infallibly revealed by insufflating these organs with hydrogen gas.

Case 6. Perforating Gunshot Wound of Abdomen; Through Insufflation with Hydrogen Gas Showing no Intestinal Perforations; Wound of Left Kidney; Expectant Treatment; Recovery.—S. W. A., thirty years of age, railroad conductor, was accidentally shot at 8 o'clock on the evening of April 3, 1890. The weapon used was a 22-calibre revolver. The physicians who were called were of the opinion that the bullet had entered the abdominal cavity, and advised prompt surgical treatment. An antiseptic compress was applied over the wound and morphia given hypodermatically. Almost immediately after the injury was inflicted the patient complained of a distressing pain in the region of the left kidney. No shock, or any other symptoms indicative of the existence of serious visceral injuries. Patient, accompanied by his physician, was transported on a cot by rail a distance of twenty-one miles, and arrived at the Milwaukee Hospital at 11:30 the same evening. At the hospital preparations had been made in the meantime for laparotomy.

Present Condition.—The wound of entrance was found near the tip of the cartilage of the seventh rib on the left side. The ragged opening, large enough to admit the little finger, was surrounded by numerous powder marks, showing that the shot was fired at very close range. Considerable emphysema in the immediate vicinity of the wound. Patient complains of pain in the wound and in the left lumbar region. Face flushed, pulse 90 and full; temperature normal. A small dose of atropia was given hypodermatically before chloroform was administered.

The abdomen and external wound were thoroughly disinfected. The track of the bullet was followed down to the peritoneal opening by an incision about three inches in length, which proved that the bullet had entered the peritoneal cavity. Under profound narcosis rectal insufflation of hydrogen gas was made. The colon became fully distended before the gas passed through the ileo-cæcal valve, showing that no perforations existed in this portion of the intestinal canal. The gas rushed through the ileo-cæcal opening with a distinct gurgling sound, after which the hypogastric region became prominent and tympanitic. The distension of the abdomen gradually ascending as the insufflation advanced, proved that the intestines were intact; finally, when the stomach became distended, an elastic tube was introduced, into the distal end of which a small glass tube was tied. As soon as the tube reached the stomach, gas escaped and was repeatedly lighted at the end of the glass tube. The hydrogen gas test had furnished positive evidence of the absence of intestinal perforations, and as

there appeared to be no danger from internal hæmorrhage, it was decided to pursue a conservative course of treatment. The ragged, discolored tissues lining the track made by the bullet through the abdominal wall were carefully dissected out, and the wound united with buried and superficial sutures, leaving a small space in the lower angle for drainage.

After the completion of the operation a catheter was introduced into the bladder, and a considerable quantity of bloody urine escaped. It was now evident that the bullet had injured the left kidney and that it was probably lodged in the tissues behind the organ. As the patient did not show any evidence of internal hæmorrhage, I concluded to await further developments in reference to the treatment of the kidney injury.

The urine contained blood in gradually diminishing quantity for two days, after which it remained normal both in quality and quantity. No untoward symptoms appeared, and the patient was fully convalescent and left the hospital two weeks after admission. He has since followed his occupation, and has suffered no inconveniences whatever from the presence of the bullet in the lumbar region.

Remarks.—The hydrogen gas test in this case proved a perfect success, as the through insufflation demonstrated in a most positive manner the absence of intestinal perforations. The bullet must have passed between the cardiac extremity of the stomach and the splenic flexure of the colon on its way through the abdominal cavity to the left kidney. Without the hydrogen gas test it would have become necessary to make an abdominal section and examine the whole length of the gastro-intestinal canal in order to show that no perforations were present, a procedure which might in itself have proved a cause of death.

The belief is almost general that a gunshot wound of the kidney should be treated by nephrectomy. In this case I decided to pursue an expectant plan on account of the small calibre of the bullet, the absence of symptoms indicative of serious internal hæmorrhage, and the existence of only a moderate hæmaturia. It was my intention, in case the injury of the kidney should result in a suppurative inflammation of this organ or its surrounding tissues, to make subsequently a lumbar nephrotomy or nephrectomy.

Objections to the Hydrogen Gas Test.

Like all other departures from the old and time-honored methods of diagnosis and treatment, the use of the hydrogen gas test in the discovery of visceral lesions of the stomach and intestines in perforating gunshot wounds of the abdomen will have to run the gauntlet of adverse criticism until, after a more extended experience in the hands of different surgeons, its merits will more generally be recognized. The principal objection, and the

one that has so far been mentioned most frequently, is that:

1. *Rectal Insufflation of Hydrogen Gas in the Diagnosis of Perforating Gunshot Wounds of the Abdomen Increases the Danger from Fæcal Extravasation.*—The small intestines, even during active digestion, contain only a limited quantity of chyle, and in the numerous experiments on animals I have never observed that the gas forced out through the perforations any of the fluid or solid intestinal contents. Any one who has observed the process of inflation *ad oculum* will understand why it does not produce extravasation. Hydrogen gas being of much lower specific gravity than the fluid intestinal contents, lifts the distended intestinal loop to the highest possible *niveau* compatible with the mesenteric anchorage of the bowel; hence when the gas reaches a perforation, that portion of the intestine occupies a higher plane than the adjacent portions of the intestine, and the chyle by its own weight seeks a lower level, leaving the perforated part of the bowel empty of its normal contents as long as it remains distended with the gas. A number of experiments were made for the special purpose of showing that the fear of fæcal extravasation taking place on applying the hydrogen gas test in the diagnosis of visceral wounds of the gastro-intestinal canal is unfounded. This will be shown most conclusively by the few experiments which I will detail briefly below.

The dogs used in these experiments had all had a full meal from three to four hours previously. Immediately after they were killed the abdomen was opened, and wounds corresponding in size with wound made by a 22-calibre bullet were made in different parts of the intestine before rectal insufflation was commenced.

Experiment 1. Duodenum.—Three wounds were made in this part of the bowel some distance apart, one on the free or convex side, one on the mesenteric side, and the third on the side at a point half way between the free and mesenteric borders. In a few seconds after the insufflation was commenced the gas had ascended as far as the duodenum and escaped from all the openings freely without causing a drop of extravasation, although this portion of intestine contained a considerable quantity of fluid at the time.

Experiment 2. Jejunum.—Three openings were made in this part of the small intestine large enough to insert the tip of the little finger. The perforations were diminished in size, but not closed, by bulging of the mucous membrane. The gas reached the perforations after moderate distension of the intestine on the distal side, and escaped freely from all the perforations without causing a trace of extravasation.

Experiment 3. Ileum.—Similar experiment with same result.

Experiment 4. Cæcum.—An opening large

enough to insert the tip of the little finger was made in the anterior wall of the cæcum, and although this part of the bowel contained liquid fæces, the gas did not force out any of the contents.

Experiment 5. Ascending Colon.—In this experiment the opening, similar in size, was made on the side of the bowel, but the escaping gas caused no extravasation.

Experiment 6. Transverse Colon.—Same experiment with same result.

Experiment 7. Sigmoid Flexure.—Lateral perforation large enough to correspond with a wound made with a 38-calibre bullet through which gas was forced by rectal insufflation, but no fæces escaped. Fæcal extravasation occurred when the bowel was compressed above the perforation and the insufflation was continued.

These experiments only corroborate my observations made in over a hundred perforating gunshot wounds of the abdomen in dogs, and my clinical experience that the distension of wounded intestines with hydrogen gas does not increase the danger from fæcal extravasation. The escape of solid fæces through a perforation by insufflation of gas is not to be expected, as the gas will pass between the solid mass and the intestinal wall, lifting the perforation away from the intestinal contents.

2. *Rectal Insufflation of Hydrogen Gas does not Infallibly Demonstrate the Existence of Visceral Wounds of the Stomach or Intestines.*—I have already stated that the hydrogen gas test has proved infallible in my hands, both in my experimental work and in the six cases which I have reported in this paper. There are two conditions under which hydrogen gas might pass the whole length of the gastro-intestinal canal without indicating the existence of a perforation:—(a) Plugging of the opening by a foreign body; (b) The perforation may be too small for the escape of the gas.

(a) *Plugging of Perforation by Foreign Body.*—Failure of the test from this source could only take place in exceptional cases, as when the stomach is wounded soon after the ingestion of a meal. A case has been reported where the stomach contained coarse solid food, in which the test resulted negatively. The patient died and the post-mortem showed that the perforation was closed by grains of rice which the patient had eaten shortly before he was shot. It is impossible to say whether in this particular case the foreign substance was driven into the opening by the bullet, or whether it was forced into it by the inflation. To prevent the latter occurrence in gunshot wounds of the stomach it is absolutely necessary to either evacuate the stomach by an emetic shortly before the test is applied, or to place the patient in such a position during the inflation that the wound in the stomach will occupy the highest level, as when this is done the hy-

drogen will lift the perforation away from the solid contents and thus effectually prevent plugging of the perforation. If the location of the probable wound is not known, the patient should be placed alternately in different positions during the insufflation. If, from the course of the bullet it is probable that the stomach has been wounded the inflation should not be made *per rectum*, but directly through a stomach tube, as inflation of this organ can be made more effectually by this direct method.

There is absolutely no danger that mechanical closure of the perforation by the impaction of a foreign body will ever interfere with the reliability of the hydrogen gas test in gunshot wounds of the intestines.

(b) *Small Size of Perforation.*—In every case of gunshot wound of the stomach or intestines, the size of the perforation is diminished by eversion of the mucous membrane which either partially or completely plugs the opening. The permeability of the perforation will not only depend on the size of the opening, but it is also influenced by the thickness of the wall of the organ at the seat of injury. The wall of the intestinal canal diminishes in thickness gradually from the stomach downward to the ileo-cæcal region. A bullet wound of the stomach of the same size as one in the lower portion of the ileum will be more securely closed spontaneously by prolapse of mucous membrane, and will consequently be less likely to be permeable to the escape of gas when insufflation is practiced.

I made an extensive series of experiments on dogs with missiles of small calibre, both for the purpose of determining the size of perforation which makes laparotomy necessary and also to ascertain the size of the visceral wound which will permit the hydrogen gas to escape into the peritoneal cavity when insufflation is made for diagnostic purposes. In reference to the first point my experiments demonstrated conclusively that the size of the missile is absolutely no indication of the size of the perforation. I used missiles varying in size from a No. 8 shot to a 22-calibre bullet. Cartridges containing an ordinary charge of powder were loaded with from four to twelve shot and the shooting was done with an ordinary 12-gauge single barreled shot-gun at a distance of ten feet, with the dog strapped upon a table and placed in erect position, and the umbilicus for a central mark. Shot of all sizes invariably penetrated the abdominal wall and passed through the peritoneal cavity. A record was kept of the exact location of the wounds of entrance and of the number of shots which entered the peritoneal cavity in each case. A number of the animals died within half an hour to two hours after the shooting and the necropsy invariably revealed hæmorrhage as the immediate cause of death, the shot having injured some of the large abdominal

vessels or vascular organs, as the spleen, liver or kidneys. Death from this cause occurred less frequently if shot of fine calibre was used, yet in several instances it was found that No. 8 shot, which are not larger than a mustard seed, caused death from hæmorrhage when the inferior vena cava or one of its large branches was injured.

A number of dogs recovered without treatment after having been shot transversely through the abdomen with a 22-calibre conical bullet. These animals were killed from one to several weeks after the shooting, when from one to four healed perforations were found. The point of perforation always presented the same characteristic appearance, a nipple-like elevation on the serous surface and a corresponding conical depression on the mucous surface. What occurred in these cases was temporary closure of the perforation by plugging of the visceral wound with mucous membrane and the formation of a cover of new tissue over the apex of the prolapsed mucous membrane. Dogs that were wounded with shot finer than No. 4 seldom died from the effects of the visceral injuries, and some of these animals were shot three different times at intervals of one to two weeks, producing in this way dozens of minute perforations in different portions of the gastro-intestinal canal, all of which healed without surgical or any other treatment. In the animals that died from the visceral injuries the necropsy always showed the existence of perforations larger than are ordinarily produced by a 22-calibre bullet. These large perforations were either caused by two shots passing in close proximity through an intestinal loop making one common wound, or they were the result of a laceration caused by the shot grazing the convex margin of an intestinal loop. In this manner I have seen a No. 2 shot tear an opening in the bowel large enough to insert the tip of the index finger.

The next object in this series of experiments was to determine the size of the smallest wound of the stomach or intestines which could be discovered by means of the hydrogen gas test without opening the abdomen. The test was applied in perforating wounds of the abdomen inflicted with shot varying in size from No. 8 to "B.B.," the latter of which corresponds with an 18-calibre bullet. Rectal insufflation was practiced immediately after the shooting. All animals in which the hydrogen gas test gave a positive result died, that is, if the gas escaped either through one of the perforations in the abdominal wall, or if it escaped into the peritoneal cavity in sufficient quantity to be recognized by physical symptoms, such as free tympanites, as nothing was done in the way of treatment in all of these cases. The post-mortem invariably showed a perforation or laceration of the intestines or stomach too large to become temporarily closed with a plug of mucous membrane; hence infection of the peri-

toneal cavity and death from septic peritonitis followed in from one to three or four days.

In the animals in which the test resulted negatively, and these included some in which shot of large calibre were used, peritonitis did not ensue, and if hæmorrhage did not prove a source of danger, they recovered without any untoward symptoms.

This to me proved an object of great interest and far-reaching practical value, as it satisfied me that the hydrogen gas test can not only be relied on when it is necessary to interfere in cases of perforating gunshot wounds of the abdomen, but that it also furnishes the only safe and positive indication for non-interference.

In all cases where the test resulted negatively, the insufflation was continued until the gas escaped from the elastic tube which was inserted into the stomach, and the presence of the escaping gas was demonstrated by lighting it at the end of the tube. I have frequently had opportunities to observe that perforations made with a 18-calibre shot were impermeable to the insufflation and that occasionally considerable force had to be used to make the gas escape through a wound made with a 22-calibre bullet. These are the perforations which will heal spontaneously and through which infection of the peritoneal cavity is not likely to occur, because escape of the gaseous and liquid contents of the intestines does not occur.

3. *The Hydrogen Gas Test Renders Reduction of Intestines after Laparotomy more Difficult or Impossible.*—This objection can only apply to cases of wounds of the stomach or of the upper portion of the small intestine. I have already insisted that when, from the course of the bullet, we have reason to believe that the stomach has been injured, this organ should be inflated directly through an elastic tube and not by rectal insufflation. If the test results positively, the indication for a laparotomy has been furnished; if otherwise, the nearest hollow organ, the colon, is examined for perforations by rectal insufflation. In the absence of perforations below the ileo-cæcal valve, the insufflation is extended as far as the stomach, and if the result is positive and the perforation is located high up in the intestinal canal, the intestines below the first perforation will be found moderately distended upon opening the abdomen. After the last perforation has been found, much of the gas can be evacuated through this opening. By resorting to Kümmels's method of replacing the intestines, no difficulty is experienced as a rule in this step of the operation. In all of my cases, and in all of my experiments I have invariably succeeded in replacing the intestines without much loss of time and without doing any damage. If high insufflation has been made and if after suturing all of the perforations, any difficulty should be

experienced in replacing the intestines, there should be absolutely no objection to making a small incision into one or more of the most distended loops of the inflated intestine and after evacuating the gas closing then by one or two superficial sutures.

4. *Hydrogen Gas Test is Unnecessary.*—It has been asserted that the hydrogen gas test is superfluous because every perforating gunshot wound of the abdomen is necessarily complicated by visceral injuries which require treatment by laparotomy. This objection to the use of the hydrogen gas test has already been disposed of, as I have shown experimentally and clinically that in a fair percentage of cases of perforating gunshot wounds of the abdomen the bullet inflicts no serious visceral injuries, and that such cases will recover, as a rule, without laparotomy.

It has also been stated that the use of the hydrogen gas test is unnecessary in detecting the perforations after the abdomen has been opened, as it is claimed that the perforations could be readily found by examining the intestinal loops lying in the course of the bullet. The adoption of this advice could not fail to lead to frequent errors of diagnosis and disastrous results in treatment, as the injured part of the bowel changes its relative position in the abdominal cavity very soon after the injury has been inflicted. This is especially true of that portion of the small intestine supplied with a long mesentery.

In order to show that a perforated intestinal loop will in a short time wander away from the place it occupied when struck by the bullet, I made the following experiments:

Experiment 1.—Medium sized male dog. The abdomen was opened by a median incision, exactly four inches in length; the omentum pushed to the left of the median line and sutured to the left margin of the abdominal wound. The intestines being disturbed as little as possible, two points of intestine corresponding exactly to the upper and lower angles of the incision were marked by drawing a black thread through the serous coat which was loosely tied and cut short. The external incision was sutured and the dog was killed eighteen hours afterwards. The wound was found firmly agglutinated and the omentum adherent to the incision. Enlarging the incision and leaving the intestines undisturbed, the upper marked loop of the intestine was found displaced two inches to the right of the median line and one inch and a half downwards and backward, being also covered by another intestinal loop, and the thread being directed toward the spine. The lower marked point was found one and one-half inches to the left, and one and one-fourth inches downwards, behind the bladder with the thread also directed towards the spine.

In the three subsequent experiments, the ab-

dominal incision was made fully six inches in length and the omentum was left undisturbed, and in the middle line two loops of the intestine, four inches apart, were marked, one with a white, and the other with a black thread which were passed through the serous coat and loosely tied. The intestines were exposed by a rent in the omentum four inches in length. On the margin of the abdominal incision a small transverse cut in the skin was made to indicate the exact position occupied by the marked intestinal loops.

Experiment 2.—Large female dog. Experiment described as above. Animal killed after twelve hours. Abdomen opened by incision from sternum to pubes and transversely at level of umbilicus. The lower marked loop was found displaced upwards three inches, and half an inch to the right of the median line. Thread in same direction as when introduced. Upper loop displaced downwards two inches, thread directed laterally, covered by another loop of intestine.

Experiment 3.—Large male dog. Killed six hours after marking position of intestinal loops. Examination showed that the marked points were transposed, upper loop now being the lower, displaced four inches downwards and half an inch to the left of the median line. Lower loop displaced two inches upwards and buried underneath two layers of intestinal coils.

Experiment 4.—Large female dog. Killed two hours after opening the abdomen. Upper marked point displaced an inch and a half downwards and an inch to the left of the median line, and covered by a loop of intestine; lower loop displaced one inch downward, and was pushed half an inch to the left of the median line.

These experiments show conclusively that in making laparotomy for perforating wounds of the abdomen, the wounded intestinal loops are seldom found in the position they occupied the time they were hit by the bullet. Even two hours after the injury an intestinal loop perforated when it occupied a place corresponding with the level of the umbilicus may be found in the cavity of the pelvis, or several inches above and to the left or right of the median line.

The hydrogen gas test is of the greatest value in locating the perforation after the abdomen has been opened, as without it, one or more perforations may be overlooked and become a cause of death in cases that might have recovered had the perforations been discovered and sutured. From the inaccessibility of the duodenum perforations of this part of the intestinal canal are very liable to be overlooked. Two cases have recently been reported where this occurred. Bernays, of St. Louis, made a laparotomy for perforating gunshot wound of the abdomen, sutured several perforations, and overlooked, as the post-mortem showed, a large perforation of the duodenum.

The second case is related from the clinic at

Basle. A man was brought into the hospital with a penetrating stab wound of the abdomen. The wound was enlarged sufficiently to permit of eventration. Inch by inch the small intestine was examined, but no perforation was found. The man died of septic peritonitis two days later. The post-mortem revealed a wound of the duodenum over an inch in length which had been overlooked, and which was the direct cause of the peritonitis and the indirect cause of death. It is needless to say, that had the hydrogen gas test been applied in these cases before or after the abdomen was opened, the perforations would have been discovered and sutured, and in all probability, both patients would have recovered.

In all cases of perforating gunshot wounds of the abdomen the whole length of the gastrointestinal canal should be tested by ballooning the stomach and intestines before the abdomen is closed, in order to guard against the possibility of leaving an undiscovered perforation.

(To be concluded.)

MEDICAL PROGRESS.

THE ANTISEPTIC VALUE OF ANILIN (PYOCTANIN MERCK'S).—DR. O. PETERSON (*St. Petersburger Med. Wochenschr.*) adds his experience with this drug to the not inconsiderable literature that has accumulated since the appearance of Stilling's brochure early in the current year. The substance was obtained directly from Merck, and consisted of pencils of violet and yellow anilin, a powder containing 2 per cent. solutions 1:2000, 1:1000 and 1:100. The observations were made in the ambulatory and in the Alexander hospital, as well as in private practice. The remedy was employed in 42 cases, presenting soft chancre 20, indurated 8, syphilitic ozena 4, gummatous ulcers 5, ecthyma syphiliticum 1, keratitis 4, blennorrhœa 1, conjunctivitis 1, after circumcision 4. Dr. Peterson devoting special attention to syphilis, has used the drug largely in cases where iodoform has formerly been employed, in all these cases he has had equally good results without the unpleasant odor that at times prevents the use of this drug. Especially in soft chancre were excellent results noted, and these were compared with a series of similar observations upon aristol, and iodide of bismuth. The latter drugs worked with much less energy than pyoctanin and the results were not favorable.

Especially good results were observed in syphilitic ozena accompanied by a foul discharge. The entire mucous membrane of the nose was penciled with a 1 per cent. solution. After three or four days the fetor disappeared and healing took place.

The article closes with the statement that

the drug has marked antiseptic properties and is equally useful in septic as well as aseptic wounds. It is useful in eye diseases as well as in venereal sores. Toxic or unpleasant symptoms have not been noticed up to the present. Further observations are earnestly desired, as the drug has a considerable range of application and may prove of great value.

BROMOFORM IN WHOOPING COUGH.—H. NEUMANN (*Therapeutische Monatshefte*, July, 1890) describes the results obtained in treating 61 cases of pertussis with bromoform. The dose, from one to three drops suspended in sweetened water, was continued from several days to two or three weeks. The results in most cases were favorable in that there was a diminution in the number, as well as the severity of the seizures. In some cases it seemed to lessen the length of the disease. The bromoform is readily taken by children as the taste is not unpleasant, and in no case were unpleasant symptoms noted from the use of the drug.

Neumann also refers to the pleasant effect of small doses of phenacetin in this condition. He employed this drug in nine cases with excellent effect.

He closes this article with the statement that the therapeutics of pertussis is still symptomatic as the drug has not yet been discovered that will destroy the germs of the disease and thus stop an attack in its incipency. But we do have drugs that affect favorably the inflamed mucous membrane, or lessen reflex action, and with these we can reach an individual and symptomatic treatment of the disease, which will greatly lessen the gravity of the symptoms. From this point of view a further study of the remedies for whooping cough is recommended until such time as the specific drug presents itself.

NINE CASES OF UTERINE MYOMATA TREATED BY APOSTOLI'S METHOD.—F. ENGELMANN. (*Deutsche Med. Wochen.*, July 3.)—These cases were taken unselected from a number which regularly visited Kreuznach for its curative regimen, and included patients rather well situated in life, and in whom a host of other procedures had been tried with varying success. The treatment in all cases was adopted only at the suggestion of the patients, who had heard of Apostoli's method and results. From the result of his experience with this treatment, E. makes the following conclusions: 1. Involution of the growth, evidenced by diminution in its bulk, could only be positively demonstrated in isolated cases, and was not considerable. 2. The principal effect of the electrical treatment was upon the diseased mucous membrane; it was in all cases brought to a nearly normal state, and the symptoms induced by it—bleeding, fluor albus—favorably influenc-

ed or entirely removed. 3. Favorable effect upon the symptoms of compression could always be obtained as well as improvement in nervous symptoms. 4. The treatment as a whole, does not accomplish more than methods heretofore in vogue; but it should still be regarded as a valuable adjunct to our armamentarium against uterine myomata.

The apparatus used by the author was a 24-cell portable modified Leclanché battery, which Apostoli had highly recommended to him. In all his manoeuvres he had followed exactly in the wake of the Parisian master. Much valuable aid was derived from a galvanometer graded to 250 milliamperes. He considers a rheostat superfluous. The external clay electrode as recommended by Apostoli was found the most serviceable, after using all the modifications vaunted by the various authorities. The patients all said that they experienced the least pain from the clay electrode. He used only platinum needles for electro-puncture, in no case steel ones. The latter are cheaper and sharper, but cannot be used when the anode is to be brought into action. Needle and sound should always be introduced without a speculum, to gain the certainty afforded by the controlling finger. The author was surprised by statements that currents of 200 and 250 milliamperes could be safely used. In most cases he could not go over 150 or 160 milliamperes, frequently not so high. He was not able to note a diminution in the pulse rate during the sittings. The most frequent symptom next to pain—which was never very great—was a not unpleasant sensation of fatigue, in one case increasing to somnolence. Apostoli and others lay great stress upon the importance of patients taking an hour's rest after the application, and then to go home in a conveyance. This precaution is especially recommended after electro-puncture. The author found this an unnecessary precaution. He repeated the applications every other day. He believes that he might have had more success if he could have protracted the treatment. At the same time he treated two cases constantly for six months without achieving anything as regards the diminution in the size of the growth. Pain was in all cases favorably influenced by the electrical treatment, in one case with astonishing promptness. The constipation which generally existed was uniformly removed. The general condition of the patient was remarkably bettered. —*Am. Jour. Obstetrics*.

EARACHE.—Take five parts of camphorated chloral, thirty parts of glycerine and ten of sweet almonds. A piece of cotton is saturated and introduced well into the ear, and it is also rubbed behind the ear. The pain is relieved as if by magic, and, if there is inflammation, it often subsides quickly.

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SATURDAY, SEPTEMBER 6, 1890.

THE ANILIDES IN PUERPERAL FEVER.

Antipyrin, antifebrin, exalgine and similar drugs are used extensively in the systemic treatment of puerperal fever. They are employed chiefly to combat pyrexia. Of the fact of the widespread use of these agents in childbed fever, we are convinced from numerous allusions in the medical press and from sufficient personal observation.

This therapy is most extraordinary, when we consider the blood changes in septicæmia, the imperfect state of our knowledge as regards the exact physiological action of the anilides, and the number of mishaps that have already occurred as a consequence of their use.

Passing over the researches of PANUM, the school of ALEXANDER SCHMIDT and others, as regards the destructive effects of "putrid poison" on the form elements of the blood, we come to the results of the investigations of modern bacteriology. KOCH writes: "The comma bacilli are able to exert a destructive influence on form elements of the blood, probably also on other cells." SCHEURLÉN has shown that the sterilized, inspissated product of metabolism of the *staphylococcus aureus* makes the blood the color of lac-dye and dissolves the corpuscular elements, an observation confirmed by BEHRING. Further, these ptomaines have the property of immediately destroying hæmoglobin. BUCHNER and NISSEN have proved that while normal blood possesses a germicidal power, this ability is readily lost. Buchner writes: "Blood is without effect in the

destruction of bacteria after one hour's elevation to a temperature of 55°, as already found by Nissen. In such blood, the increase of the disseminated bacteria begins at once. The blood has become a culture medium. And at the same time, solution of a large portion of the red blood corpuscles occurs." GOTTSTEIN'S¹ experiments tend to show that the destruction of the red cells in circulating blood has a similar effect in the inhibition of any germicidal action. The chief conclusion of his very interesting investigation is as follows: "Certain bacterial products, especially those of putrefaction, possess the property of destroying red blood corpuscles. A destruction of the red corpuscles, that inhibits germicidal action in defibrinated blood, also effects in the living organism such a lowering of resistance, that bacteria, that have no, or only local pathogenic properties for the particular organism, now attain the ability to stick securely in external wounds, and to increase within the circulation to the degree of septicæmia." In his experiments upon rabbits, guinea pigs and mice, in addition to the injection of the bacteria of splenic fever and chicken cholera, he used hydracetic (acetyl-phenylhydracin), pyrogallie acid and other blood poisons. The most striking case was that of guinea pigs injected with chicken cholera. These animals infected with chicken cholera, and injected with hydracetic in not deadly doses, died of septicæmia, while other animals subjected simply to the subcutaneous injection of the chicken cholera remained entirely immune. In this connection Gottstein remarks that in all fevers dependent upon septic conditions great caution is demanded in the exhibition of those remedies that injure the cellular elements of the blood.

Now, as before remarked, our knowledge of the exact physiological action of the anilides is very imperfect, but the weight of evidence, collected from observation and experiment, is very much in favor of the view that these agents, even in small doses, are liable to affect the form elements of the blood. Antipyrin, according to LÉPINE, produces "in dogs trembling, apathy, weakness and fall of temperature, with loss of excitability of peripheral nerves. The arterial blood became, in some cases, of a dirty brown color, loaded with methæmoglobin; the corpus-

¹ "Beiträge zur Lehre von der Septicæmia," Deutsche Medicinische Wochenschrift, No. 24, 12 Juni, 1890.

cles were said, however, to be unaltered either in number or shape, and the serum was not tinged. Analysis of the gases of the blood showed great deficiency in oxygen. Large doses depressed the heart action." Exalgine, according to BINET, produces similar blood changes in cats and rabbits, together with much salivation. Cyanosis is a marked symptom of poisoning by aniline, the base from which all these bodies are derived.

In human beings, however, hæmoglobinuria has been recorded as a symptom of antipyrin poisoning, and there is evidence to show that the anilides, not necessarily in large doses, do affect the integrity of the blood. For the details of two remarkably clear cases of poisoning by anilides in small doses (exalgine and antifebrin), we beg to refer our readers to an excellent paper by T. JESSOP BOKENHAM and E. LLOYD JONES, that appeared in the *British Medical Journal* of February 8. Among the symptoms in these cases, were cyanosis, great dilatation of blood-vessels, small, regular, compressible rapid pulse. Urinary changes were not observed.

In the light of all the evidence, it is impossible at present to justify the exhibition of the anilides in puerperal fever. Indeed, in view of the effect upon the blood and circulatory apparatus, it is even in order to question the propriety of using these drugs in the alleged mitigation of the pain of parturition. We advisedly employ the expression, "alleged mitigation," since up to the present, the reports as regards the analgesic value of the anilides in labor, while contradictory, yet indicate an uncertain, and very limited power.

The anilide treatment of puerperal fever receives its severest condemnation, when it is remembered that for years the profession has been in the possession of a highly successful plan of treatment, and that after all, the use of these dangerous artificial drugs is a work of supererogation. As systematized some years ago by MAX RUNGE, this plan consists chiefly in the administration of maximum quantities of food and alcohol, combined with spongings with cold water.

Within the past six months, an example of sapræmia has come under our personal observation, in which the inhalation of oxygen apparently effected an immediate and permanent reduction of pyrexia. The gas was exhibited some hours after adequate local disinfection.

Certainly, this agent is harmless, and there is presented in the researches of GOTTSTEIN an eminently rational indication for its use. If certain blood poisons, like hydracetic acid and the anilide reduce the physiological resistance of the blood, and so favor the increase of bacteria, why may not oxygen augment the germicidal action of the blood?

THE AMELIORATION OF LEPROSY IN INDIA.

The careful consideration that leprosy in India, especially, is receiving by special commissions and other agencies in Great Britain, has already brought about marked improvement in the condition of many patients. The two leading thoughts, at the present time, appear to be, first, the home repression of vagrancy among lepers, and, second, the protection of the children of lepers. These commend themselves to us as very practical and practicable first steps toward the prophylaxis of the disease. A bill has been drawn up, designed to establish governmental retreats into which the vagrant class shall be gradually gathered, and in which the sexes shall be separated. In many places, in India, no lazarettoes of any kind exist, and are not only much needed for the protection of the natives from the roving lepers who spread the disease, but also for the comfort and keeping of the lepers themselves. Next in importance arises the question of the care of the children, not yet infected, of leprosy parents. It has been pointed out by DR. MONRO, a careful student of this question, that "leprosy has never been proved to be transmitted without contact, and is not constantly transmitted to their families, even when both parents are diseased, and it seldom affects more than one child in the same family." SIR MORELL MACKENZIE has expressed the opinion that the hereditary transmission has scarcely any existence. It is, nevertheless, highly important to take away from these children the risk of contagion, and for this purpose a few homes have been established, in connection with existing asylums for adults. A society in Scotland is actively exerting itself in this direction; but it must, of course, be a labor of many years before the ground can be thoroughly covered. The medical care of lepers, the questions of nursing, diet, and the treatment of the many distressful symptoms of the disease, have been the means of undoubted bene-

fit to many hundreds of cases that have been brought within the reach of the medical missions and other retreats of European and American origin.

IS DIDACTIC TEACHING LOSING GROUND?

The part played by the eloquent lecturer, in our medical curriculum, is designed to greater desuetude, if the indications that come to us from abroad are any criterion. The General Medical Council of Great Britain has recently taken action which will serve for a milestone, for many a year; it is virtually a rebuke to all those that place the restrictions upon graduation if they continue to exact a large number of attendances upon didactic teaching. The superabundance of systematic lectures is out of proportion to the requirements of the present age, as will be seen by the resolution adopted by the General Council, as follows:

"That regulations requiring attendance on systematic courses ought not to exceed a demand for more than *two or three* lectures weekly in any one course, nor for an attendance upon more than *two or three lectures in any one day*." The ability of the modern student to sit all day in the lecture-room is challenged, and this new doctrine will, it is said, be an especial relief to the students in the Scottish universities, where the hold of the lecturer, as the chief means of imparting instruction, still remains a strong and dominant one. SIR JOHN SIMON, one of the Council, remarked that it was absurd to require a student to attend lectures on subjects which might be equally well, if not better, learned from the text-books. And DR. MITCHELL BANKS observed that the Scotch lecturer appeared to be a sort of man-eating tiger amongst the lecturers; and he had heard of persons being preached to death by wild curates, but an even greater catastrophe would be to be lectured to death by Scotch professors, a fate which he himself, thanks to a naturally robust constitution, had narrowly escaped. The advocates of this action in the Council were not so much in favor of shortening the actual time given to the required subjects, but of allowing the professor to substitute for lectures other and more practical means of imparting knowledge, and to give time to class examinations and laboratory work.

EDITORIAL NOTES.

STORIES OF A COUNTRY DOCTOR.—This clever volume by Dr. Willis P. King, formerly president of the Missouri State Medical Association, is true to its title, and has the advantage of suitable illustration. It contains nearly four hundred pages, issued from a printing house in Kansas City. This book will commend itself to the profession, above the few others of its class that have been attempted in this country, because of the keen observation, joined to a subtle sense of humor, possessed by its author, who is able with dignity and friendliness to give an insight into the curious corners of rural experience. It must have required no little courage on the part of Dr. King to publish these recitals, but he has proved himself the master of the situation and may expect good degree of success and solid returns.

THE PHILADELPHIA COLLEGE PRIZE AWARD.—The Alvarenga prize of the College of Physicians of Philadelphia, consisting of one year's income of the bequest of the late Dr. Alvarenga, of Lisbon, has been awarded to Dr. R. W. Philip, of the Victoria Dispensary for Consumption at Edinburgh, for his essay on pulmonary tuberculosis, which will presently be published by the College.

BUBONIC PLAGUE IN TURKEY.—The *New York Medical Journal*, quoting from the *British Medical Journal*, announces that the Imperial Sanitary Board of Turkey, has information of an outbreak of the plague at Kale-Daragehan, a village of 280 inhabitants, and that forty-two persons have been attacked, with twenty-six deaths already. The reporter of the cases, Dr. Constantinides, personally observed many of the patients. He states that the disease is marked by inguinal, axillary, and retro-auricular buboes, with a temperature of 104° F. and a bluish cutaneous rash.

A NEW MEDICAL JOURNAL.—The first number of *The Journal of the State Medical Society of Arkansas* is just received. At the last annual meeting, in answer to a recommendation of President Orto in his annual address, a committee was appointed to report upon the advisability of publishing the proceedings of the State Medical Society in the form of a monthly journal. The committee, consisting of J. M. Kellar, D. C.

Ewing, and L. P. Gibson, reported in favor of such action, and as the result of its adoption by the Society, the first number of the journal is presented to the profession under the editorial supervision of Dr. Lorenzo P. Gibson. It is published solely in the interests of the Society, and has no other business relation. Each number will contain *forty-eight pages of reading matter*, and will command the services of a number of medical men who can well represent the Southwest in the field of medical journalism. Its financial success is already assured. We welcome it to our list of exchanges and bespeak for it a successful career.

OBSTETRICS AND GYNECOLOGY.—The American Association of Obstetricians and Gynecologists will hold its next annual meeting in the hall of the College of Physicians in Philadelphia, September 16, 17 and 18, 1890. E. E. Montgomery is President and William Warren Potter Secretary. A general invitation to all physicians interested in these specialties is cordially extended to attend the several sessions.

SURGEON-GENERAL BAXTER.—Colonel Jedediah H. Baxter has received the appointment of Surgeon-General of the U. S. Army, the nomination by the President having received the unanimous concurrence of the Senate. His father, Portius Baxter, formerly represented his State in Congress. Surgeon Baxter was born in Vermont in 1837. He is a graduate of the Vermont University. He entered the Army as Surgeon in the Twelfth Massachusetts Regiment of Volunteers in 1861. From that date to this he has been in continuous service, at all times holding positions of prominence and responsibility. He was appointed Chief Medical Purveyor by General Grant in 1872, which position he has held up to the date of this last promotion. His able and continuous service in the Army for nearly thirty years receives a fitting recognition, as the highest honor in his department in the gift of the nation is thus conferred upon him.

THE VALUE OF INTERNATIONAL CONGRESSES.—The Tenth International Congress at Berlin came to a successful closing, and its volumes of Transactions will bear witness to the value of the contributions there made. The special practical advantages to be derived from such international gatherings lies not so much in special work there

accomplished. The press, rather than the forum is more serviceable in the promulgation of scientific truths; but the opportunity thus presents for the meeting of men of note, face to face, one which will lend inspiration to their future efforts, and will give them an added value. Such meetings beget a world-wide interest in all medical questions; they develop a brotherhood of the profession; they broaden and strengthen the great work of scientific investigation which must be incident to medical progress. The profession will look forward with unwonted interest to the next great assemblage in the city of Rome, not soon forgetting the notable assemblage at Berlin and the unbounded hospitalities which were so freely accorded.

THE PREVALENCE OF CHOLERA.—We have nothing of special import as to the spread of this disease beyond that which was noted in the last issue. It now prevails generally along the Arabian shores of the Red Sea, in Cairo, and along the southern shore of the Mediterranean. It has appeared in various provinces in Spain advancing to the borders of Portugal. We hear nothing later of its supposed appearance in London.

AN ARMY MEDICAL BOARD will be in session in New York City, N. Y., during October, 1890, for the examination of candidates for appointment in the Medical Corps of the United States Army to fill existing vacancies. Persons desiring to present themselves for examination by the Board will make application to the Secretary of War, before October 1, 1890, for the necessary invitation, stating the date and place of birth, the place and State of permanent residence, the fact of American citizenship, the name of the medical college from whence they were graduated, and a record of service in hospital, if any, from the authorities thereof. The application should be accompanied by certificates based on personal knowledge, from at least two physicians of repute, as to professional standing, character, and moral habits. The candidate must be between 21 and 28 years of age, and a graduate from a Regular Medical College, as evidence of which his diploma must be submitted to the Board. Further information regarding the examinations may be obtained by addressing J. H. Baxter, Surgeon-General U. S. Army, Washington, D. C.

TOPICS OF THE WEEK.

RESULTS OF BACTERIOLOGICAL RESEARCH.

Upon this subject we quote the concluding portion of the able address of Dr. Robert Koch, at the late meeting of the International Medical Congress at Berlin. His words are as follows:

"Up till now I have purposely left one question untouched, although it is precisely the one which is most frequently, and not without a certain amount of reproach, addressed to bacteriologists. I mean the question of what profit all the weary labor which has up to the present been expended on the investigation of bacteria has been? Properly speaking, no such question should be asked, as true research follows its own way without being misled by the consideration whether its labors will yield immediate advantage or not. I cannot, however, deem this question utterly unwarranted in the present instance, as very few of those who occupy themselves with bacteriological research leave practical objects entirely out of sight.

"The practically available results obtained up to the present by means of bacteriological research are by no means so despicable as some askers of the above question think.

"I need only refer to that which has been accomplished in the domain of disinfection. Just at this point there was previously no foothold; men worked completely in the dark, and often enough large sums were spent in useless disinfection, leaving altogether out of account the indirect harm done in other ways by the neglect of hygienic precautions. Now, on the other hand, we possess certain knowledge by means of which we are able to test the efficacy of disinfectants, and if much still remains to be done in that province, we can at least affirm that the disinfectants now in use, so far as they have been tested, efficiently fulfil their object.

"Among the practical results might also be reckoned the application of bacteriological methods to the control of water filtration, as for that purpose nothing else can take the place of these methods. Connected herewith are the discoveries arrived at by means of bacteriological research as to the filtering properties of the soil, and the important consequences resulting therefrom as to the employment of ground water for water supply, and for the proper construction of wells. In the same way as in the case of water, bacteriological methods can be applied to the control of milk, especially as far as it is destined for the nourishment of children, as well as to the examination of other alimentary substances and other things in common use which are open to the suspicion of infection. The examination of the air in sewers, and the confirmation which the generally accepted opinion as to the injuriousness of sewer gas has thereby received; the examination of the air in schoolrooms, the recognition of pathogenic bacteria in alimentary substances, in the soil, etc., stand, as it is impossible to deny, in intimate relation with practice. Among the practical results I might further count the possibility which bacteriology has supplied of diagnosing sporadic cases of Asiatic chol-

era, and the first stages of pulmonary tuberculosis, the former being of importance for the prophylaxis of cholera, the latter for the timely treatment of tuberculosis.

"All these things, however, are advantages which can only indirectly be employed in the struggle against bacteria. We have hardly any directly acting, that is, therapeutical, agents to place beside the indirect ones. The only things which can be adduced in this connection are the results which Pasteur and others have obtained by means of protective inoculation in rabies, anthrax, quarter-evil, and swine erysipelas. With regard to antirabic inoculation, the only one which is applicable to man, it may be objected that the cause of rabies is not yet known, and probably may not be of a bacterial kind, and that this preventive inoculation should not be placed to the credit of bacteriology. Notwithstanding this, that discovery grew on bacteriological soil, and could not have been made without the antecedent discoveries of protective inoculation against pathogenic bacteria.

"Although in these directions, in spite of endless toil, bacteriological research has only such insignificant results to show, I am nevertheless not of opinion that this state of things will always continue. On the contrary, I am convinced that bacteriology will one day be of the greatest importance from the therapeutical point of view also. It is true, I look for relatively smaller therapeutical results in the case of diseases with a short incubation period and a rapid course. In these diseases, as for example in cholera, the chief reliance will always have to be placed on prophylaxis. I am thinking more of diseases of less rapid course, as these offer more points of attack to therapeutic enterprise. And there is scarcely a disease which, partly on this ground, partly on account of its far surpassing all other infectious diseases in importance, so challenges bacteriological investigation as tuberculosis.

"Moved by these considerations, very soon after the discovery of the tubercle bacilli, I set about seeking for substances which could be used therapeutically against tuberculosis, and I have pursued this search, which has, of course, been often interrupted by my other occupations, perseveringly up to the present. In the belief that there must be a remedy for tuberculosis, I do not by any means stand alone.

"Billroth has, in one of his last writings, expressed himself with all possible distinctness to the same effect, and it is well known that the same object is aimed at by many investigators. It seems to me, however, that the latter have not as a rule followed the right way in their investigations, inasmuch as they have begun their experiments on man. To that I ascribe the fact that everything which people have believed themselves to have discovered in that way—from benzoate of soda down to the hot-air treatment—has proved to be a delusion. Experiments must be made in the first place not on man, but on the parasites themselves in their pure cultures; even if substances have been found which have the power to check the development of tubercle bacilli in the cultures, man should not forthwith be chosen as the subject of experiment. But the question whether observations which have been made in a test tube hold good

also in living animal bodies should first be settled in animals. Only if the experiments on animals have proved successful, should the method be tried on man.

"Proceeding according to these rules I have in the course of time tested a very large number of substances to see what influence they would exert on the tubercle bacilli cultivated in pure cultures, with the result that not a few substances have the power, even in very small doses, of hindering the growth of tubercle bacilli. More than this, of course, a remedy cannot do. It is not necessary, as has often been erroneously assumed, that the bacteria should be killed in the body; in order to make them harmless to the body it is sufficient to prevent their growth, their multiplication.

"I have proved the following substances to be remedies which hinder such growth even in very small doses (to mention only the most important):—A number of ethereal oils; among the aromatic compounds, β naphthylamin, paratoluidin, xylidin; some of the so-called tar dyes, namely, fuchsin, gentian, violet, methyl blue, chinolin yellow, analine yellow, auramin; among the metals, mercury in the form of vapor, silver and gold compounds. The compounds of cyanogen and gold were especially conspicuous, their effect surpassing that of all other substances; even in a dilution of 1 to 2 millions they checked the growth of tubercle bacilli. All these substances, however, remained absolutely without effect if tried on tuberculous animals.

"In spite of this failure I have not allowed myself to be discouraged from prosecuting the search for growth-hindering remedies, and I have at last hit upon a substance which has the power of preventing the growth of tubercle bacilli, not only in a test tube, but in the body of an animal. All experiments in tuberculosis are, as everyone who has had experience of them has sufficiently discovered, of very long duration; my researches on this substance, therefore, although they have already occupied me for nearly a year, are not yet completed, and I can only say this much about them, that guinea pigs, which, as is well-known, are extraordinarily susceptible to tuberculosis, if exposed to the influence of this substance, cease to react to the inoculation of tuberculous virus, and that in guinea-pigs suffering from general tuberculosis even to a high degree, the morbid process can be brought completely to a standstill, without the body being in any way injuriously affected.

"From these researches I, in the meantime, do not draw any further conclusions than that the possibility of rendering pathogenic bacteria in the living body harmless without injury to the latter, which has hitherto been justly doubted, has been thereby established."

"Should, however, the hopes based on these researches be fulfilled in the future, and should we succeed, in the case of one bacterial infectious disease, in making ourselves masters of the microscopic, but hitherto victorious, enemy in the human body, then it will soon also be possible, I have no doubt, to obtain the same result in the case of other diseases. This opens up an oft-promised field of work, with problems which are worthy to be the subject of an international competition of the noblest kind. To give even now some encouragement to further

researches in this direction was the sole and only reason why I, departing from my usual custom, have made a communication on a research which is not yet completed.

"Allow me, therefore, to conclude this address with the expression of a wish that the nations may measure their strength on this field of labor and in war against the smallest, but the most deadly, foes of the human race, and that in this struggle for the weal of all mankind one nation may always strive to surpass the other in the successes which it achieves."

ROME AS A PLACE OF MEETING.

No city in the world can offer attractions to visitors to equal those of the Queen City of Europe. To mention the name of Rome is to evoke in the minds of those who are familiar with the historic glories, the artistic treasures, and the monumental grandeur of that city, memories of an ineffaceable delight, to renew which must in itself be an invincible attraction; while to those who are acquainted with the storied beauties and undying loveliness of the palaces, the galleries, and classic remains of the Eternal City, such a visit must be looked forward to with eager anticipation. Rome, too, is now a centre of great scientific and literary activities, the capital of an illustrious nation, and one whose aspirations and repute, not less than its enthusiasm and its sympathies, will not allow it to dream of being backward in the organization for the great reception, such as that of which London, Copenhagen, Washington, and Berlin have in turn afforded models. The invitation was all the more acceptable from being given by Baccelli, a former Minister of State, a President of the Italian Society of Medicine and of the Medical Academy of Rome, an orator, a statesman and a *savant*—one of the most brilliant of speakers, one of the most lovable of men, and one of the most distinguished of modern investigators. Under his invitation, and with the support which he is sure to find from the Government, from the municipality, and from his countrymen, we may be sure that the future Congress of Rome will have attractive features of its own, before which it is not improbable that all Congresses up to this date will pale their ineffectual fires.—*British Medical Journal*.

THE SURGICAL SECTION AT BERLIN.

The London *Lancet* correspondent makes allusion to this Section as follows:

"The material submitted to this Section was perhaps on the whole more remarkable for quantity than for quality; no great or startling innovation in surgery has marked this International Congress. Without doubt the various hospitals in Berlin have undergone great and radical changes in the last ten years. Many of them were shown to the Section, and in all lavish expenditure was more than apparent. The new hospital is quite unsurpassed by any yet built in its arrangement and technical fittings. It is evident that the aseptic, as opposed to antiseptic, method of operating has obtained a firm foothold in Germany."

PRACTICAL NOTES.

ECZEMA OF DENTITION.

For eczema of dentition, treatment is to be directed to three indications (*Gazette Hebdom. in Annals of Gynecology and Pediatrics*, July, 1890).

1. To calm pruritus of the gums, frequent rubbing with the finger dipped in a solution of the following:

- R. Cocaine hydrochlorat., gr. j.
Potass. Bromid., gr. x.
Glycerine.
Aqua destillat., āā f̄ss. ℥.

2. For insomnia a dessertspoonful hourly of—

- R. Sodii bromidi, gr. xij.
Syrup aurant flor., f̄ss. ℥.

3. For the local eczema the following:

- R. Zinci oxid., gr. xx.
Vaselini, ʒj.

—*Buffalo Med. and Surg. Journal*.

ANTIPYRIN IN CUTANEOUS AFFECTIONS.

One of the symptoms which is most disagreeable in a large number of skin diseases, is the intense itching or soreness which causes scratching, with consequent injury to the parts involved. Many remedies are now added to the applications usually ordered to allay this troublesome state. Chief among these are carbolic acid, menthol, chloral hydrate, and cocaine, but even these often prove inefficient. According to Blaschko, of Berlin, antipyrin proves a most valuable remedy under such circumstances, and he recommends that for infants the following be given internally:

- R. Antipyrin, ½ drachm.
Simple syrup, i oz. ℥.

Dose, half a teaspoonful at night before going to bed.

Sometimes large doses are needed, but excellent results are to be obtained by this means in eczema, urticaria, strophulus, pemphigus, lichen ruber and planus. Not only does it prove palliative, but often curative, probably by preventing scratching. Antipyrin may also be used for hysterical pruritus with advantage, but in adults must be given in full doses and frequently.—*Medical News*.

HYPNAL IN THE TREATMENT OF NEURALGIC INSOMNIA.

Dr. Fraenkel reports, in *Nouveaux Remèdes*, that he has prescribed hypnal in various cases at his clinic, and that sleep resulted as with chloral, and with the characteristics of the sleep produced by the latter drug—that is, a calm and refreshing sleep, without nausea or disagreeable sensations on awakening—and that the painful symptoms improved as they improve after the administration of antipyrin. Hypnal, or monochloralantipyrin, is a chemically well-defined compound that is less soluble than either chloral or antipyrin; in the

presence of a feeble alkali it is resolved into these substances, and this decomposition occurs in the blood or in the intestine. It has only a slight taste and odor, and is easily administered to children. It produces the hypnotic effect of chloral augmented by the analgesic action of antipyrin, and is especially valuable in insomnia caused by pain. It may be administered in capsules or powders, in doses of 15 grs., to an adult, that may be repeated if necessary. For a child the dose is from 1 gr. to 10 grs.—*N. Y. Medical Journal*.

FRUIT AT MEALS.

As a rule, a fruit dessert in the evening and after a mixed meal ought only to be lightly indulged in, for the average stomach will but rarely tolerate a heavy influx of such cold and usually watery aliment as fruit. This is not the case if the fruit is eaten before or between the meal courses. A ripe melon eaten with salt or butter, before or immediately after the soup, can be freely indulged in. Experience teaches us that stewed or raw fruit may be largely taken between the courses. In many parts of the Continent this custom prevails; the Germans eat stewed fruit with many meats, and in warmer climes such fruit as grapes, plums, figs, melons and sweet lemons are habitually eaten with all kinds of dishes as palate refreshers between the courses.—*Annals of Hygiene*.

ACETANILID IN EPILEPSY.

Dr. Theodore Diller, of Danville, has been using acetanilid in the treatment of epilepsy in nine cases in which bromides and other modes of treatment had previously been employed. He finds that in all the cases in which the drug was given continuously there was noted a reduction in the number of fits ranging from about 25 to 75 per cent., as compared with other months during which the patients were on bromide and tonic treatment alternately. The remedy was in all cases well borne, producing no apparent mental or physical depression, this forming a marked contrast to the depressant effects noted after a course of bromides. No skin eruption was produced. In spite of these results, however, he believes that in any given case, in which a great number of fits are occurring, and where it is desirable to control them as soon as possible, bromides would be of far more value than acetanilid. From the table appended to his paper it would appear that the beneficial effects of acetanilid were most marked only after the drug had been employed for over three months. In two cases no improvement followed the use of acetanilid.—*Lancet*. [Dr. Beaumetz proposed the use of exalgine in epilepsy, and Déferine is now testing the new drug at the Bicetre.]—*N. Y. Med. Abstract*.

SOCIETY PROCEEDINGS.

Tenth International Medical Congress,
Berlin, August, 1890.

DR. H. C. WOOD, of Philadelphia, delivered
before the Congress

AN ADDRESS ON ANÆSTHESIA.¹

He said: The most brilliant modern achievements of the science and art of medicine in the direct saving of life are connected with surgery. These great achievements have been rendered possible by two epoch-making discoveries—antiseptics and anæsthesia. The long array of fatal cases of poisoning by carbolic acid, by iodoform, by corrosive sublimate, and by other antiseptic agents; the hundreds of deaths from chloroform, ether, and other anæsthetics, all bear witness to the verity of that strange law, in obedience to which the progress of the human race is so often at the sacrifice of the individual. Antiseptics has outgrown the dangers of its youth, and to-day the measures that are meant to save very rarely kill. On the other hand, the death roll of anæsthesia is daily added to—added to, according to my belief, at a rate that has not changed in forty years. Though this be true, from far-off Australia comes the news that jury and judge have condemned to heavy penalty a chloroformist who had lost his patient; and in England itself a well-known medical journal lends support to such a verdict by affirming that “deaths from chloroform are preventable, that with due care, they may be avoided,” and that, therefore, when they occur they are the result of ignorance and carelessness. If this be true, five hundred deaths and more—the result of ignorance or carelessness! Five hundred surgeons, including such names as Billroth, Jaeger, Simpson, McLeod, Agnew, Hunter McGuire, and others of equal rank, guilty of manslaughter! And still the carnage goes on. Surely, under such circumstances, the subject of anæsthesia is worthy of the attention even of this, the most learned medical gathering of the nations that the world can furnish. Antiseptics, the gift of the Old World to humanity; anæsthesia, the gift of the New World, which made the fruits of antiseptics possible—surely it is fitting that I, standing here to-day before you all as the representative of the newer civilization, should be the chosen mouthpiece for the renewed discussion of this old but pressing theme.

In attempting a fresh study of a well threshed-out subject, I propose to take advantage of the modern physiological methods, and to endeavor to discover by experiments upon the lower animals how anæsthetics kill, and what drugs or measures are most powerful in putting aside their lethal effects. This brings us face to face with

the question, How far is it possible to adapt experiments to the needs of practical medicine, and to reason from the dog to the man? A full discussion of this subject would not be opportune, but it does seem necessary for our purpose to devote a few minutes to the pointing out of certain general guiding principles.

It ought to be acknowledged as a fundamental axiom, that no amount of experiments can overthrow a clinical fact, although when a contradiction between experimental and bedside observation seems to arise, such contradiction challenges the correctness of the alleged clinical and experimental facts alike, and should lead to careful re-examination. No amount of failure to purge a dog by elaterium proves that elaterium does not purge man; whilst, on the other hand, the discovery that digitalis increased the blood pressure in the lower animal very properly led to doubt as to the correctness of the, at that time general, belief that digitalis acts upon man as a cardiac sedative, and finally to the recognition of the falsity of the clinical observation upon which such belief rested.

Whatever difficulties may beset the path of the experimental therapist, it is certain that law is throughout the universe supreme; that man, at least in his physical nature, is only an especially developed animal; and if drugs act differently upon different animals, such action must be in obedience to certain laws, to us known or unknown.

Any attempt to fairly discuss these laws would lead us too far afield for the present. One law, however, treads so closely upon the matter at hand this morning, that it requires statement. This law is, that when an apparatus or system is of similar function, and of similar functional activity in different animals, the difference in the action of remedies is very rarely, if ever, in kind, though it may be in degree. Throughout mammalia the heart has one general structure and one general function; the heart of the dog responds to the touch of digitalis precisely as does the heart of the man. The human brain is so much more highly developed than the brain of the lower mammal that it is, in fact, a new organ or apparatus, and its relation to drugs changes with the change of structure and of function. The scope of this law in regard to anæsthesia is not far to seek. The functions especially compromised in lethal anæsthesia are respiration and circulation. Surely these functions are similar throughout mammalia, and surely we ought to be able to safely reason concerning them from the dog to the man.

Recently, however, alleged clinical facts have been challenged by high authority, upon the strength of experimental results. Under these circumstances, nothing must be at once abandoned, everything must be re-examined. These

¹ British Medical Journal, August 16, 1890.

reëxaminations I have made, and I may be pardoned, perhaps, if I affirm that a complete study of the clinical and experimental evidence brings out, not a discord, but a most beautiful concord—that concord between experimental and practical medicine which so often fails to appear simply because we cannot fit together the fragments of truth in our possession.

Although numerous substances have been tried, there are to-day in use practically only three anæsthetics—nitrous oxide, ether, and chloroform. Of these, nitrous oxide stands apart, because it produces loss of consciousness, not by virtue of any inherent properties, but simply by shutting off from the nerve centres the supply of oxygen.

It has been asserted that the changes of circulation produced by the inhalation of nitrous oxide are essentially different from those of mechanical asphyxia, and that therefore nitrous oxide does not act as an asphyxiant. It must, however, be borne in mind that the phenomena of mechanical asphyxia are largely due to the presence of an excess of carbonic acid in the blood, whilst in the asphyxia produced by nitrous oxide there is no excess of carbonic acid, so that the phenomena present are simply the outcome of a lack of oxygen. It is, therefore, *a priori*, to be expected that the phenomena of mechanical and of nitrous oxide asphyxia should differ to a certain extent. To determine the way in which nitrous oxide inhalation affects the circulation, I have, during the past winter, in connection with my assistant and friend, Dr. David Cerna, made a long series of experiments. The result has been to show that usually the inhalation is followed by a rise of the arterial pressure, accompanied by a great disturbance of the pulse; the pulse at first becoming irregular and tumultuous, but by-and-by settling, so that when anæsthesia is complete the pulse wave is remarkably large and full, and the rate very slow. The rise and fall of the arterial pressure in nitrous oxide anæsthesia was found to vary remarkably, not only in different inhalations, but in different periods of the same inhalation. Sometimes the rise was sudden, sometimes it was slow and gradual; sometimes it was maintained until near death, sometimes it was interrupted very early; sometimes it was not very well marked, sometimes it was enormous.

In all our experiments respiration ceased while the heart was still in full activity. Indeed, instead of the gas acting as a cardiac depressant, it appeared to act as a cardiac stimulant, although it paralyzed the vasomotor apparatus. Thus, during complete anæsthesia, faradization of the sciatic nerve always failed to register itself in an increase of the blood pressure, although the heart was beating very powerfully, and although the pneumogastrics had been previously severed; whilst late in the poisoning—at a time when the respiration had absolutely ceased, and the animal

was in this respect dead, and without the power of self-recovery, and when the arterial pressure also had fallen almost to zero—the pulse waves were frequently still nearly three times the normal.

We made but few experiments as to the action of artificial respiration upon the animal dying from nitrous oxide, but these experiments proved that even after complete paralysis of the respiratory function, artificial respiration is capable of rapidly bringing the animal back to life. The heart lives on through nitrous oxide anæsthesia long after the respiratory function has been abolished, and even when the strong, full pulse fails, and the heart has almost ceased to quiver, recovery is still hopeful, because the loss of function has been caused, not by the presence of a poison, but by the absence of oxygen; and although the paralysis may be complete, the life power sleeps before it dies, and is ready to awake at the touch of fresh oxygen.

These experimental results are in strict accord with clinical observations. The S. S. White Dental Manufacturing Company supply a very large, if not the largest, portion of the apparatus and material used for the administration of nitrous oxide in the United States; and, in answer to my inquiry, Dr. J. W. White, their President, writes me that a computation based upon their own sales, and a knowledge of those of their rivals, has reached "the somewhat appalling result, that anæsthesia by nitrous oxide gas is probably effected in three-quarters of a million cases annually in the United States." Most of these inhalations have been given, not by trained physicians, but by comparatively untrained and often very ignorant dentists; have been given to patients in a sitting or semi-sitting posture; have been given apparently without thought or care to the general community, as the units presented themselves; to the healthy and to the diseased alike; and the result is, out of many millions of inhalations, only three deaths recorded as directly due to nitrous oxide. Could anything be safer?

A suggestive and very practical fact which came out in our experiments is that sometimes during an inhalation of nitrous oxide the rise of the arterial pressure is extraordinary and abrupt. Not long since, in the city of Philadelphia, a gentleman arose from the dentist's chair after an inhalation of nitrous oxide, staggered, and fell in an apoplexy. Is it not easy to perceive that when the arterial system is diseased the great strain of a sudden rise of blood pressure may produce rupture?

Some years since Dr. Kenderdine, a Philadelphia surgeon of local note, died of diabetes, which he insisted was produced in him by the inhalation of nitrous oxide. This is in accord with the researches of the French physician, Dr. Lafont, who reported a case in which sugar appeared in the urine twice in a patient after the inhalation

of the gas, and who also caused in himself, and in dogs, temporary glycosuria by such inhalations. Further, Dr. Lafont noticed in a case of mitral insufficiency temporary albuminuria.

I am not aware that these very suggestive statements of the French physician have given rise to any research, except five experiments made recently upon healthy men, with negative results, by two medical students of the University of Pennsylvania, Messrs. George S. Woodward and Alfred Hand, jun. I do not believe that ordinarily the inhalation of nitrous oxide is followed by sufficient disturbance of the circulation to register itself in the urine, but the negative evidence of Messrs. Woodward and Hand is not sufficient to render it improbable that in exceptional cases the inhalation of nitrous oxide may produce albuminuria or glycosuria. Such phenomena, if they occur, are in all probability not directly produced by the nitrous oxide, but are due to the disturbances of capillary circulation caused by it.

However these facts may be, it seems to me that great caution should be used in the administration of nitrous oxide to persons the coating of whose arteries is diseased, and it is probable that when widespread atheroma exists, ether is a safer anæsthetic than nitrous oxide.

When respiration has been suspended in nitrous oxide anæsthesia, the overwhelming indication is certainly for the employment of artificial respiration.

Notwithstanding the great safety and the many advantages which attend the anæsthetic employment of nitrous oxide, the gas can never be used for the general purposes of the surgeon, on account of the excessive fugaciousness of its influence.

The perfect anæsthetic will be a substance which has the power of paralyzing the sensory nerve trunks without affecting other functions of the body. If such drug exists it yet awaits the coming of its discoverer. Probably until such a sensory-nerve paralytant is found chloroform and ether will maintain the complete supremacy which they now have; and in the further discussion of my subject I shall confine my remarks to them. Lack of time limits this discussion to:

1. The method in which these two drugs kill, both in man and in the lower animal, that is, whether they destroy life through the circulation or the respiration.

2. The comparative fatality attending the use of these two agents, and the reasons for the difference.

3. The comparative disadvantages between the two agents, and the best method of securing the desired results.

4. The treatment of accidents occurring during ether or chloroform anæsthesia.

In regard to the method in which anæsthetics

kill, my own teaching hitherto has been: First, that although ether in moderate doses acts as a stimulant to the circulation, yet, in overwhelming amount, it is capable of depressing the heart, but that such depression of the heart is always less than the depression of the respiration, and therefore ether kills always through the respiration; secondly, that chloroform may produce death by paralysis of the respiratory centre, or by a simultaneous arrest of respiration and circulation, but that primary paralysis of the heart may occur, and is especially prone to do so when the chloroform vapor has been given in concentrated form.

I think that these views are in accord with general professional belief, but it has recently been alleged that they are at variance with experimental evidences, so that a re-examination is necessary. What, then, are the clinical facts?

If any credence is to be attached to the statements of competent witnesses, who have recorded human deaths during anæsthesia, it is certain that in some cases, under the influence of chloroform, the pulse and respiration have ceased simultaneously; whilst in other instances the respiration has failed before the pulse; and in still other cases the pulse has ceased its beat before the respiratory movements were arrested.

Usually ether arrests respiration in man before it paralyzes the heart, but the collection of records made by Dr. J. C. Reeves certainly show that the fatal result may be produced by syncope. Thus Dr. Ernest H. Jacobs, in a report of a fatal case, asserts positively "the pulse ceased, the breathing continued." It would seem that we must allow that ether in the human subject may cause death in the same methods as does chloroform.

Such then are the clinical facts; or in other words, such are the results of observations made upon the human subject. What are the results of observations made upon animals?

The general teaching in regard to chloroform has been recently challenged by Dr. Lauder Brunton, who, as the result of 450 experiments made by himself upon the pariah dogs of India, has reached the conclusion, as published in the *London Lancet*, that however concentrated the chloroform may be it never causes death from sudden stoppage of the heart. In the physiological laboratories of the University of Pennsylvania, for some years, several hundred dogs have been used annually, and a very large proportion of these dogs have been, at the end of an experiment, killed by chloroform. The observations of Dr. Reichert, Professor of Physiology in the University, Dr. Hobart Hare, Demonstrator of Therapeutics, and myself, have been concordant in showing that chloroform is a cardiac paralytant, and often does kill dogs by a direct action upon the heart or its contained

ganglia. The statements made concerning the Hyderabad Commission, however, led Dr. Hare and myself to a careful and thorough restudy of the subject. Some of our experiments were made by injecting chloroform into the jugular vein; others by administering it by inhalation in the usual way.

The action of the chloroform seems to be not seriously modified by the method of administration. We definitely proved that in the dog chloroform has a distinct, direct, paralyzing influence on both respiration and circulation; that the respiration may cease before the heart beat, or the two functions be simultaneously abolished; but that in some cases the heart is arrested before respiration. We have several times seen the respiration continue as long as one, and even two minutes after the blood pressure has fallen to zero, and the pulse has completely disappeared from the carotid artery.

The correctness of our experiments, we claim, must be acknowledged. The experiments have not only been witnessed by a number of persons, but I have with me to-day tracings which I will gladly show anyone especially interested in the subject. I do not desire to express any doubt whatever as to the correctness of the experimental data of Dr. Brunton; I simply claim that both sets of experiments, although they have yielded different results, have been correctly and properly performed. It may be that the high heat or other climatic conditions surrounding the pariah dog make his heart less sensitive to the action of chloroform than is the heart of the dog bred in northern climates. That the thought of the different constitutions of animals in different climates is not absurd, is shown by the fact that some years ago—after I had affirmed before the Physiological Section of the International Medical Congress at London, that if certain asserted results were obtained upon European dogs, said dogs must differ from those of America, and had been met with a smile of incredulity—Dr. Brown Séquard rose and stated that he had experimented upon hundreds of dogs on both continents, and that there was a distinct difference between the animals, the vascular system of the European dogs being much more developed, and operations upon them being, therefore, much more bloody than was the case with the American dog.

A very curious parallel might be traced at this point between the experimental and clinical evidence in regard to the effect of climate upon the action of chloroform. In the Southern United States chloroform is used with great freedom, and with great alleged safety; and as long ago as 1878, Dr. Landon B. Edwards, editor of the *Virginia Medical Monthly*, wrote: "It is one of the most peculiar effects I have ever known in medical practice—the difference of

experience in Europe and the North with chloroform and ether as compared with that of the South—the high rate of mortality in the North, and the low rate in the South." Further, in a recent letter to me, Sir Joseph Fayrer affirmed the extraordinary safety of chloroform in India, and stated that he knew of no death from it as having occurred in that country, although its use is universal.

In a series of experiments which I have recently made myself to determine the changes in the circulation produced when ether anæsthesia is carried on to death, I have found that in the first periods of anæsthesia the blood pressure is usually elevated, and that it is usually quite high at a time when the respirations are very shallow and imperfect, and the dark color of the blood shows that it is heavily charged with carbonic acid. It is not, however, very rare for the blood-pressure to remain near the normal, and I have seen the blood-pressure begin to fall in the very first stages of ether anæsthesia; moreover, in at least two experiments, death occurred from syncope, the respiration continuing for one or two minutes after the complete cessation of the circulation. In an experiment in which the fall of blood-pressure was most pronounced, and the arrest of the heart most complete, the dog was sick from the mange, and it is possible that the weakened heart was more susceptible than is the normal heart to the depressing influence of ether.

So far, then, as concerns the method in which ether and chloroform kill, I claim most urgently that there is no contradiction between the results as obtained by the bedside and in the physiological laboratories, and that a complete broad study of the clinical and experimental evidence leads to one conclusion, namely, that chloroform and ether are capable of paralyzing the respiration and the circulation; that in some cases one function, in other cases the other function, is primarily arrested; but that ether is less prone to produce a primary arrest of the heart than is chloroform.

In the discussion of the second point which I have raised, namely, as to the comparative fatality attending the use of ether and chloroform, I shall not occupy time with any elaborate setting forth of the clinical evidence. In regard to the number of recorded deaths, I shall content myself with accepting the latest statistics at hand, namely, those collected by Dr. Lawrence Turnbull, who has found 375 deaths reported from chloroform, and 52 from ether. I do not believe that these figures nearly represent the total mortality; I doubt very much whether one-third of the deaths from anæsthesia are reported; certainly not one-third of the cases I have had personal knowledge of having been publicly recorded. Moreover, the pressure to conceal deaths from chloroform, is greater than when the lethal re-

sult is due to ether. The surgeon who uses ether feels that he has employed the safest anæsthetic, and that he will receive no blame if a death occurs from it, and feels also that he has a rare case to put on record, which will give his own name a permanent place in anæsthetic literature; whereas the surgeon who uses chloroform knows that if death occur from the anæsthetic, a very large proportion of the profession, at least in the United States, will condemn him either in public or in secret for the use of this drug, and that he will be fortunate if he escape being publicly condemned by a coroner's jury. Moreover, deaths from chloroform are only too common, so that the surgeon has nothing to gain and much to lose by publication of a chloroform death, and, if possessed of the average human nature, holds his peace.

It seems to me impossible to get at the exact number of anæsthetic deaths, or the proportionate fatality of ether and chloroform. Lyman considers that in regard to chloroform, the ratio of deaths to inhalations is one in 5,860; Richardson affirms that it is 1 in 2,500 to 3,000; Andrews puts it for ether at 1 in 23,204; and Lyman at 1 in 16,542.

Without claiming strict accuracy for any of these figures, I think that it can be asserted that the probable ratio of deaths from chloroform is three to five times that of deaths from ether.

When we come to study the effects of chloroform upon the lower animals, we find that it varies very distinctly in its action on the different species. The cat seems to withstand the fatal influences of chloroform with a power worthy of its reputed "nine lives." Many years ago, Professor Schiff called attention to the fact that the use of chloroform as an anæsthetic in the dog is usually attended with the loss of many animals. Prof. Martin, of the Johns Hopkins University, writes me that the margin between complete chloroform anæsthesia in the dog, and chloroform death, is a very narrow one. This certainly is our experience in the University of Pennsylvania; we have never been able to use chloroform as an anæsthetic without losing a very large proportion of our dogs.

(To be concluded.)

MISCELLANY.

HEALTH IN MICHIGAN.—For the month of July, 1890, compared with the preceding month, the reports indicate that cholera infantum, cholera morbus, cerebro-spinal meningitis, dysentery, whooping-cough, diarrhoea, typho-malarial fever, and inflammation of bowels increased, and that membranous croup, measles, pneumonia and influenza decreased in prevalence.

Compared with the preceding month the temperature was slightly higher, the absolute humidity and the relative humidity were less, the day ozone and the night ozone were less.

Compared with the average for the month of July in the four years 1886-1889, membranous croup, measles and influenza were more prevalent, and small-pox, puerperal fever, typho-malarial fever and typhoid fever were less prevalent in July, 1890.

For the month of July, 1890, compared with the average of corresponding months in the four years 1886-1889, the temperature was lower, the absolute humidity and the relative humidity were less, the day ozone and the night ozone were more.

Including reports by regular observers and others, diphtheria was reported present in Michigan, in the month of July, 1890, at 50 places, scarlet fever at 55 places, typhoid fever at 29 places, and measles at 72 places.

Reports from all sources show diphtheria reported at 8 places less, scarlet fever at 3 places more, typhoid fever at 1 place more, and measles at 36 places less in the month of July, 1890, than in the preceding month.

ANTISEPTIC DUELING.—In a recent duel with small swords, just as the principals were in position, a loud voice exclaimed: "One moment, gentlemen!" At the same instant a surgeon sprang forward with a bottle in his hand. This surgeon was imbued with modern ideas, and taking the swords he dipped their points in a solution of phenic acid, remarking as he handed them to the duelists: "Gentlemen, you may now kill each other without danger of purulent infection!"—*Medical Age*.

ALBUMEN IN URINE.—A solution of one part of acetic acid, and six parts of 1 per cent. solution of corrosive sublimate is prepared; to this the suspected urine is slowly added, which at once produces a distinct cloudiness. This test is not affected by peptones, uric acid, or the phosphates.

LETTERS RECEIVED.

Dr. George W. Webster, Dr. S. B. Collins, Chicago; Dr. E. E. Montgomery, Buffalo, N. Y.; Dr. Joseph F. Hobson, Cleveland, O.; Dr. Carrol Dunham, Irvington-on-Hudson, N. Y.; Dr. B. Chapman, Copley, O.; Dr. D. Y. Winston, Russellville, Ky.; Dr. R. S. Brice, Keota, Ia.; Dr. W. R. Greenlee, Harrison, Miss.; Dr. G. L. Buland, Greenwood, Wis.; Mr. D. R. Craig, Keokuk, Ia.; Dr. J. W. Breedlove, Fort Smith, Ark.; Dr. C. D. Watson, Ontario, Cal.; Henry Bernd & Co., St. Louis; Dr. Hannah T. Croasdale, Dr. Richard H. Harte, Philadelphia; Dr. B. M. Ricketts, Cincinnati; Dr. Carl Koller, Med. Monthly Publishing Co., New York City; Dr. Louis A. Kengla, San Francisco; Dr. Maris Gibson, Wilkesbarre, Pa.; Dr. L. J. King, Visalia, Cal.; Dr. R. C. Ward, Northfield, Mass.; Dr. J. W. Stickler, Spring Lake, N. J.; Dr. H. M. Brown, Hillsboro, O.; J. H. Bates, Dr. W. R. Townsend, Scott & Bowne, R. Terhune, W. P. Cleary, New York City; W. D. Kline, Nashville, Tenn.; Dr. Guido Bell, Indianapolis, Ind.; Dr. H. W. Elmer, Bridgeton, N. J.

Official List of Changes in the Medical Corps of the U. S. Navy for the Week Ending August 30, 1890.

Medical Inspector A. A. Hoehling, in addition to present duties, ordered as President of Medical Examining Board at Philadelphia, convened by Department order June 9, 1890.

Asst. Surgeon R. M. Kennedy, in addition to present duty, ordered as member of the above Board.

P. A. Surgeon F. N. Ogden, in addition to present duty, ordered as member of the above Board.

Surgeon Walter A. McClurg, granted a month's leave of absence from September 1.

Surgeon Edward Kershner, granted a week's leave of absence from September 1, 1890.

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NO. 11.

ORIGINAL ARTICLES.

THE IMPORTANCE OF SURGICAL MEANS
APPLIED TO THE NASO-PHARYNX IN
THE RELIEF OF NASO-PHARYN-
GEAL AND MIDDLE-EAR
CATARRH.

*Read in the Section of Laryngology and Otology at the Forty-
first Annual Meeting of the American Medical Association,
Nashville, Tenn., May, 1890.*

BY C. W. RICHARDSON, M.D.,
OF WASHINGTON, D. C.

As a preface to the few remarks I am about to make I wish to offer a few words in explanation; not in apology. During the early part of the present year, at the invitation of your Secretary, I furnished him with the title of the present paper. Shortly after having written to Dr. Potter I received a copy of the *Journal of the Respiratory Organs*, containing that most excellent paper read by Dr. Daly before the New York Medical Society, carrying out, to some extent, the very idea and train of thought I intended following in presenting this subject for your consideration. I immediately wrote Dr. Potter requesting his permission to change my subject, to which he kindly consented, but, at the same time, urging me to continue its agitation. Concluding that the doctor's advice was well worthy of consideration, I decided to adhere to my original intention, and in a feeble way, lend my aid to the grand piece of "missionary work" already begun by that able exponent of rhinological wisdom, Dr. W. H. Daly.

In the presentation of this subject to-day it is not my intention to array the rhinologist against the otologist; but simply to insist upon the necessity of the thorough surgical treatment of certain conditions existing within the naso-pharyngeal cavities as an aid to the radical removal of, and in preventing the recurrence of, certain affections of the middle-ear. During the past decade the intimate relationship existing between, or rather dependence of, diseases of the middle-ear upon those of the naso-pharynx has been so thoroughly recognized as to cause a great increase to that class of specialists whose education, from its in-

ciency, has been such as to thoroughly imbue them with these ideas; whose education in the ear has been as thorough as in that of the nose and pharynx; whose education has been such as to cause them to view the diseases of the ear, in many cases, to be dependent upon an existing disease of these cavities; has caused them to search for these causes, to remove them when present, and thus thoroughly to relieve their patients, to this class of practitioners, and as an humble exponent of these ideas, I claim to belong. Dr. Daly in his presentation of the subject has handled the otologist from a rhinological point of view; and the otologists have accused him, and indirectly the rhinal surgeons, with an incomplete knowledge of diseases of the ear. These exponents having clashed arms it now remains for the auro-rhinologist to attempt to bring these warring factions to terms, bring harmony out of discord, and aid in showing the absolute necessity of the otologist being more of a rhinologist than ophthalmologist. I suggest that we aid in this good work because we are unbiased, we cannot be accused of wanting in knowledge of the use of the tuning fork; because, while being conservative, we do not hesitate in resorting to operative interference, when demanded; and, on account of having many ear cases presented primarily, we are better able to judge the relationship existing between diseases of the ear and those of the naso-pharynx.

During my short experience as an auro-rhinologist it has been my lot to have had under observation a number of aural cases that have previously sought relief at the hands of skilled auro-ophthalmologists in this vicinity and neighboring cities. These cases may be divided into two great classes, viz.: acute and chronic inflammation of the middle ear cavity. Among the acute cases were many of recurring middle-ear catarrh, non-suppurative and suppurative middle-ear inflammations. In all the above mentioned acute affections there existed various affections of the nasal and pharyngeal cavities, in many of which, their existence was so patent as hardly to escape the eye of the most non-observing layman. In some cases the aurist, who has been usually an ophthalmologist, while recognizing some disturbance of the normal functions of the naso-pharynx-

geal cavity, failing to appreciate its nature, has applied for its relief unscientific, inadequate, or inappropriate treatment showing an utter disregard, want of knowledge, and frequent dread of the only proper therapeutic measure for the relief of the condition present, naso-pharyngeal surgery. The surgical treatment of these cavities would not have in view only the restoration of them to a normal condition, but also, by the light of our present knowledge, aid in a restoration of the impaired organ of audition, and, acting as a prophylactic agent, by removing the cause, prevent the recurrence of subsequent attacks. In many of the acute affections of the ear, in which there had been numerous recurrences, in the hands of otologists, I have almost universally found some affection of the naso-pharyngeal cavity the relief of which, by operative measures, not only aided in affecting a rapid recovery, but also produced an absolute immunity from subsequent attacks. These facts are so thoroughly acknowledged by all auro-rhinologists as to have become an aphorism—to cause me almost to apologize for having given it mention, but having done so I shall cite several cases to illustrate this point.

About two years ago I had placed under my care, by an otologist of Washington, a young woman who had frequent recurring attacks of middle-ear catarrh. One attack would hardly be relieved before another would supervene. For years she had been under medical care for this annoying deafness, but invariably found that though exerting all due care she was certain to find her efforts futile. My friend sent her to me that I might treat her throat, at the same time advising me to continue attention to the ears. He was the first medical attendant who had ever suggested the care to nose and pharynx. The pharynx was, with its thick padding of mucus, the most disgusting sight I have ever seen; the tonsils were enormously hypertrophied; the vault studded with stalactite-like hypertrophies; and the anterior and post-nasal orifices blocked by hypertrophies of inferior turbinates. The whole picture was changed within a few days by internal and pharyngeal surgery. While patient was recovering from effects of active surgical procedures several inflations were made, and she was discharged, within a short period, with no catarrh of nose, pharynx or ear, and so remains at present writing.

Some time ago a patient was presented to me for examination. She had been under the care of various auro ophthalmologists for several years for a chronic suppuration of the right middle-ear, but not having obtained relief her parents had desisted in treatment. I found considerable glandular hypertrophy at vault of pharynx, and suggested the removal of the same as a possible means of aiding in the relief of the suppuration of the ear; as the child was about to leave town

they did not consent to immediate treatment. Within six months an acute suppurative inflammation having occurred in the left ear patient was placed under my care. Removal of glandular hypertrophies at vault, with mild but effective treatment to ears, was followed within a few days with cessation of suppuration in the old, and within a couple of weeks in the recently affected one. I have seen this patient lately; hearing normal and no suppuration.

Several cases of chronic middle-ear catarrh have been under observation that have received the most decided negative prognosis from distinguished auro-ophthalmologists; in these I have found naso-pharyngeal disease of an obstructive character, the removal of which, with simultaneous and subsequent use of inflation, has been attended with the most satisfactory results. Acute inflammation of the middle-ear I seldom see without finding some obstructive disease of the nasal cavity or glandular hypertrophy at the vault of the pharynx. The simple treatment of the ear affection without any attempt to remove the producing cause, as is the course adopted by the majority of aurists, leaves the case half treated; it leaves the patient, to say the least, open to a recurrence at any moment. It would be unnecessary to give a long citation of individual cases drifting into our hands, who would show the insufficiency of simple otological treatment. In speaking as I do, I do so only with regard to the locality in which I live and its environs. In Washington and Baltimore the auro-ophthalmologist does not seem to recognize the great importance of naso-pharyngeal diseases as productive of affections of the ears. If they do, their actions belie their opinions, and one must acknowledge that they are rhinal therapeutic nihilists.

Obstructive disease in the naso-pharynx, hypertrophies, polypi, spurs, deflected septi, and hypertrophied glandular tissue at vault of pharynx, are the conditions usually observed by me as demanding treatment in most of the cases coming under my observation. The *modus operandi* in the production of disease of the middle-ear through obstructive disease of the naso-pharynx, whether by interfering with the ventilation of the middle-ear, by extension of catarrhal inflammation, by inflammatory infiltration into or paralysis of tubal muscles, are questions of minor importance as compared to the great truth, now universally acknowledged, that these conditions are productive of the affections mentioned, and that the only consistent, scientific, rational, and, therefore, proper treatment, consists in the primary removal of the causative agent as essential to the secondary treatment of disease thereby produced. Even should the above assertion be challenged in general, or as regards any individual case, one cannot but admit that many of these cases, in the hands of the aurist and auro-ophthalmologist are

allowed to continue suffering more or less inconvenience from unpleasant naso-pharyngeal affections which the auro-rhinologist would at once recognize, and, simultaneously with the aural affection, relieve. I cannot agree with the statement I have several times noted, made by a distinguished New York specialist, that atrophic rather than hypertrophic nasal catarrh is productive of the major proportion of middle-ear affections. Atrophic nasal catarrh, in which the nasal passages are extremely patulous, has presented the smallest per cent. of middle-ear affections in my practice.

In showing how inadequate the ordinary treatment of ear affections under the care of the auro-ophthalmologist is, I do not wish it to be understood that I am, to any extent, an aural nihilist. I am afraid a great many of my medical *confères* are claiming too much for the independent use of the forceps, cautery, snare, drills and saw. I doubt very much of their curing all the ills to which the ear is subject unless they at the same time resort to a judicious use of aural therapeutic measures. Firmly convinced as I am of the value of naso-pharyngeal surgical methods, I have not yet thrown away the leech, douche, paracentesis knife, Politzer bag or catheter; our only safeguard is the judicious use of these means and the acknowledgment of their just therapeutic value. On the other hand, we must acknowledge the increased successfulness, or aid to success, in otological work rendered by the rhinal surgeon; but while acknowledging these achievements one must remember that there are a vast number of aural cases falling under our observation thoroughly independent of any change within the naso-pharyngeal cavity; the affection in the one being synchronous with but independent of the affection in the other; the relief of the one not arresting the retrogressive progress of the other. It is almost unnecessary for me to state that I refer to sclerotic changes within the tympanic cavity. These cases are usually present in persons manifesting little or no change in naso-pharyngeal cavity, with patulous tubes. What aid can the rhinologist here furnish? If the patient is to have relief it must be through aural therapeutic measures employed in the hand of the skilled otologist. It is nonsense for one to agitate ideas having in view the condemnation of otological therapeutic methods—they have a vast field of usefulness. The otological surgeon existed and filled a field of usefulness before the rhinal surgeon was born. It is not a question of the younger, but more thriving member devouring as it were the one which it claims to have so sorely afflicted, but rather a question of the more thorough amalgamation of the two branches; a more thorough appreciation of the dependence of aural affections upon naso-pharyngeal disease; a more thorough application of rhinal therapeutic

methods in the treatment of aural affections by the aural surgeon, the aurist becoming more of a rhinologist and the rhinologist more of an aurist; a more thorough inculcation of these views in the aural and rhinal clinics of this country and elsewhere. Contrary to expressed views, one does not find either in aural clinics that careful examination and treatment of the naso-pharyngeal cavity as is carried out in rhinal clinics, nor in rhinal clinics that same care and attention to the ears that one finds in aural clinics; and appreciation of the inadequacy of the routine treatment of the case as resorted to by the auro-ophthalmologist.

Independent of the direct relationship and import of naso-pharyngeal surgery as applied for the relief of affections of the middle-ear, it also has an important direct action when applied for the relief of naso-pharyngeal catarrh. Coming before a body of experts in naso-pharyngeal diseases, it would seem almost unnecessary for me to refer to the important rôle that glandular hypertrophy and bursitis play in the production and continuance of naso-pharyngeal discharges. It would seem unnecessary, I say, to call attention to these important facts were they universally acknowledged and duly regarded. Most authorities agree and acknowledge that glandular hypertrophy at vault of pharynx when existing in sufficient quantity to cause more or less interference with nasal respiration should be removed, but there is a want of unanimity when this tissue exists only in small quantity. There may be doubt in the minds of many as regards the advisability of the thorough removal of all glandular tissue at vault, possibly thinking that its existence there implies that it must perform some physiological function. In the normal condition, as shown by numerous examinations upon the living and dead, there exist no such excess of glandular tissue. I have been able in a number of cases to demonstrate the important rôle, slight glandular hypertrophy, and projecting knobs of adenoid tissue, play in the production and in the continuance of naso-pharyngeal catarrh. There exists also another condition at the vault in which there is, what might be called, an hypertrophical condition of the mucous membrane. The mucous surface, as noted at the choanæ, appears to be thrown into folds, and projects slightly beyond what appears to be normal; it is deeply injected, being well demarkated from the contiguous mucous surface. In other words, having very much the appearance of granulation tissue as seen in the oral portion of pharynx. The lateral chains of lymphatic tissue occasioned add an element. Bursitis may or may not be acknowledged. There exists a condition at vault that bears all semblance to this condition, and the influence it has in the production of excessive post-nasal secretion cannot be overlooked or

underestimated. While insisting upon the important bearing the conditions just mentioned have in the production of excessive post-nasal secretions and their removal by surgical procedure, in the cessation of the same, I do not wish it to be understood that I offer them as the sole factors, or for an instant overlook other important elements in the production of this affection. What I wish to emphasize is the frequent dependence of post-nasal secretion upon local pathological changes such as those just mentioned, the removal of which will be attended with beneficial results. I do not insist upon any special surgical procedure; the forceps may be used with advantage in one case, the cautery in another.

In closing I must thank you for your kind attention, and apologize for the rambling nature of my remarks and want of strict adherence to the text as given.

ON THE DETERMINATION OF ASTIGMATISM WITH THE OPHTHALMOMETER (JAVAL-SCHIÖTZ).

Read in the Section of Ophthalmology, at the Fort-first Annual Meeting of the American Medical Association, Nashville, Tenn., May, 1890.

BY CARL KOLLER, M.D.,
OF NEW YORK.

It is almost a century since the great English philosopher, Thomas Young, discovered in his own eye an error of refraction due to different refraction of different meridians. For half a century the knowledge thus obtained did not influence the practice of prescribing glasses. It was almost exclusively astronomers, scientists and physiologists, like Young, Airy, Stokes, Fick and others who studied this asymmetry of refraction in their own eyes, measured it and tried to correct it. The first to have used cylindric glasses to this end was Airy. A new impetus was given to the study of this imperfection of the human eye by the invention of Helmholtz's ophthalmometer. With the aid of this perfect instrument, invented to determine the curvature of different surfaces, Helmholtz, Donders and their pupils, as Knapp, Woinow, Middelburgh, Mauthner, etc., studied in all directions the dioptric system of the eye. Fundamental points were settled, as for instance that the refraction had nothing to do with the curvature of the cornea; that the curvature of the cornea is not changed by accommodation; that astigmatism is almost exclusively due to the form of the outer surface of the cornea, that all eyes, with a very few exceptions, have a certain degree of astigmatism; that the meridian of stronger refraction in the great majority of cases is the vertical one, and a great number of minor points. However, the ophthalmometer remained an instrument fit only to be used in a few laboratories by the hands of a few investigators. Practice

had to content itself with circumstantial and little exact devices of subjective tests, the great number of which is the best proof of how very unsatisfactory they are.

To the energy and perseverance of Javal, who made the study of astigmatism a task of his life, and who by this has established a claim upon the gratitude of mankind, we are indebted for an instrument, at the same time accurate and so perfectly fit for practical purposes, that it hardly allows any improvement. One cannot say that the instrument, for the time it has been made known to the profession—about ten years—is so generally known as it deserves. When it first came into my hands, about five years ago, I was assistant then at the eye hospital in Utrecht, under the management of Donders and Snellen. A very few exemplars were to be found at the European clinics, and when by the daily use of it I became convinced that it was superior to any other method of finding and determining astigmatism, it was my wonder why the profession did not avail itself of this superior means. When two years ago I came to this country, which is so very ready to adopt new and good methods, I found the ophthalmometer comparatively unknown. Only a few men had it in constant use, and contributed to its becoming known. These circumstances might excuse me when I bring before you an instrument which ten years ago was already perfect in its chief traits, although the new model represents some improvements on the old one. If I succeed in showing you the great advantages this way of determining astigmatism has over all the others, and so contribute to the spread of a valuable invention, I shall feel satisfied with the trouble I have taken.

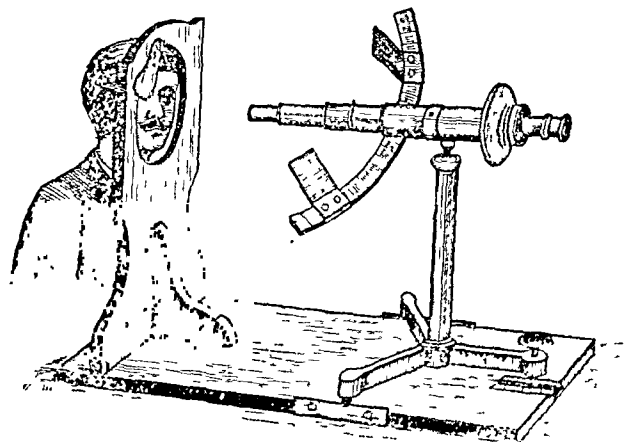


Figure represents the old model of the instrument. In the new model a large disc containing the radiating lines and figures for designation of axis covers so much of the instrument as to render the drawing unintelligible.

The ophthalmometer of Javal-Schiötz has the object to determine the curvature of the cornea, and the instrument is arranged in such a way that the differences of curvature in the different

meridians of the cornea accurately and quickly can be detected. It is generally admitted nowadays that astigmatism, in the vast majority of cases, depends chiefly or wholly upon the asymmetry in curvature of the cornea. I shall deal later with this question, and for the present will assume the correctness of the statement.

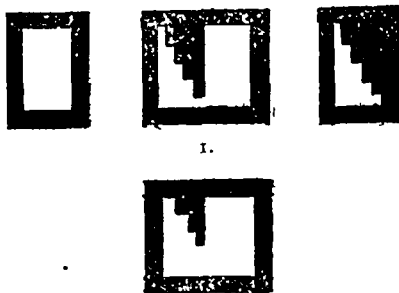
The curvature of surfaces is most easily determined by the measurement of katoptric images; therefore, the instrument has to consist of an image-issuing object and an image-measuring part. Since the curvature shall be determined in different meridians, and in fact differences of curvature shall be measured, both parts must be revolving around a fixed axis. The image-measuring part is represented by a telescope, to which an arc immovable is fastened; the ray of this arc is 300 mm. and the center of its curvature is the eye to be observed. Two targets, one of each attached to one arm of the arc represent the image-issuing object. The size of an image reflected by a convex mirror—and the cornea acts here as a mirror—depends on three things: The size of the object, its distance from the mirror, and the radius of curvature of the mirror. Three of these things known you can calculate the fourth very readily. To determine the radius of the cornea you can put an object of a known size in a certain distance, measure the size of the image reflected and calculate the radius. But you can also follow another way: You can vary the size of an object standing at a definite distance until the mirror of unknown curvature reflects an image of definite size. If you now measure what the size of the object was required for that, you can easily calculate the ray of curvature. This way was adopted by Javal and Schiötz with their instrument.

The two targets attached to the arc are movable and so represent the out ends of an object to be varied in size by moving from or towards each other. In order that this supposed object might keep within the definite distance of 300 mm. from the cornea, the telescope with which the image is observed has an invariable focal distance, so chosen that when the images are seen through it the arc with targets is in a distance of 300 mm. from the cornea. Still the image is to have a certain size. This is attained by a double refrigent prism of Iceland spar placed in the telescope. The prism is cut in such a way that on its place within the telescope it has a doubling power of 3 mm. To explain this latter: If you look at one point through the telescope and the prism hidden in it you will see double images of this point—just distant 3 mm. from each other; and if you look at an object of 3 mm. size you will see double images of this object, one end of one image touching the other end of the other image. That gives you a means at hand to measure the size of smaller objects, in our case

of the katoptric image reflected from the cornea. When the image has just the size of 3 mm., the double images which the telescope gives you will touch each other with their outer ends; when the image is larger the ends will overlap each other, and when it is smaller than 3 mm. the ends of the double images will be as distant from one another as the image is smaller. All we have to do to measure the curvature of the cornea is: to place the eye in question on the right place in resting the chin of the person on the head piece, then to direct the telescope upon it by means of a screw and lateral motion and so look at the reflected images of the two targets. As already mentioned the two targets represent the out ends of an imaginary object which can be varied in size by moving the targets. The doubling action of the prism shows us four images of the two targets, two of each one; we observe only the two medium ones representing different ends of the same object and neglect the two outer ones. If the two middle images are just in contact, we know that the image of the imaginary object reflected by the cornea has the accurate size of 3 mm. In case they are distant or overlapping we have to adjust the targets in order to attain the required position. In measuring our object and making a simple calculation we will find the radius of the cornea. But this trouble can be spared, as a division of the arc gives us directly the corneal radius for the corresponding size of object. If the images by adjusting the targets are brought to contact, and remain so, as the arc is revolved about the axis, it may be concluded that the curvature of the cornea is the same in all its meridians and no astigmatism is present. Measuring the curvature in a number of meridians calculation would give us the amount of astigmatism, if any, present, and its chief axis. But owing to a particularity of astigmatic surfaces we can dispense with such a circumstantial measuring and figuring. The dioptrical and katoptrical images of cylindrical lenses and mirrors are displaced in a certain way, and the same holds good for all astigmatic surfaces that can be considered as a sphero-cylindrical combination. The image of a straight line is parallel to the object line only in the case that the direction of the line is coincident with one of the chief axis;—in every other case it is turned to a certain angle.

In my treatise about cylindrical lenses, "Graefes Arch.," 1887, I have given the theory of this fact in order to explain some very interesting phenomena based upon it. This very particularity of astigmatic surfaces enables us to find the axis of astigmatism by one turning of our instrument. Our image-issuing object extends chiefly in one direction, it is parallel with the arc and coincident with the doubling plain of the crystal within the telescope. Suppose the arc with its targets stands by chance just in the

meridian of strongest or weakest refraction; the katoptric images will be situated in the same plane where also the doubling action of the prism takes place. Therefore, the double images will stand in the same level, and we know we have found the meridian of one of the chief axis of astigmatism. But now suppose the arc does not stand in the meridian of one of the chief axis, the reflected image will not be parallel to its subject but turned in a certain degree. The doubling action of the crystal nevertheless takes place in the plane of the arc, and as a consequence thereof the double images will not stand in the same level. By a simple turning of the arc we can bring them to the same level and so find the chief axis. A large disk with radiating lines and figures for the meridians is fastened to the telescope. On its reflected image in the cornea we can read the position of the axis so found. In turning the arc and telescope by 90° we bring the instrument in the other chief axis in order to find the exact amount of astigmatism. It might be said in parenthesis that in this way we ascertain that there are cases of astigmatic curvature of the cornea—although they are very rare, which do not directly follow mathematical rules, as the chief meridians are not rectangular to each other but include smaller angles (until 70°)—contrary to the rule known as Sturm's law, which says that in three-axis ellipsoids the meridians at maximal and minimal curvature include an angle of 90° .



Double images of targets. 1, in contact. 2, overlapping.

The diagram of the targets is so chosen that from the amount of overlapping of images the amount of astigmatism in dioptrics can be read without any further calculation;—for a certain increase in the size of the images corresponds to a certain increase in the size of the radius, that is, a certain amount of astigmatism. Strictly does this hold good only with eyes of one size, and eyes can be of very different size, notwithstanding they have the same refraction. Think, for instance, of a mouse's and an elephant's eye, both emetropic—an example which Javal himself at another occasion has used. For small eyes the part of the image corresponding to one dioptre ought to be smaller, for big eyes larger. But since we have to deal almost exclusively with eyes of the corneal radius 7.8 or 8 mm. the

arrangement as it is, is accurate enough and very expedient for practical purposes. Having found amount and direction of astigmatism, we have to verify this result by the glass test. The test with glasses is necessary and cannot be superseded by any other test, just as the determination with the ophthalmoscope can facilitate and abbreviate the glass test but cannot do away with it. The gain is enormous anyhow.

Beginning the examination of a patient as to his refraction there are a number of things which we do not know. We do not know if there is astigmatism; in case there is what its amount is, how the axis stand and which the refraction is. This concurrence of unknown makes the examination of refraction so difficult and often so tedious. The ophthalmoscope, with which every examination should begin, gives us a number of points, but still there remains sufficient uncertainty to make us feel often that we are at the mercy of the patient's intelligence. With the ophthalmometer of Javal-Schiötz we can settle some of those questions before we enter in the subjective test. We can find out if there is astigmatism or not; we can find its chief axis with exactness; we can find its amount with sufficient accuracy. And all that we do with a rapidity that is not approached by any other method. I have still to speak of the question already mentioned in beginning, if the assumption is just that astigmatism is solely or chiefly due to the cornea, and, therefore, measuring the astigmatism of the cornea will give us the astigmatism of the whole eye. In the first papers about astigmatism there was much spoken about the astigmatism of the lens and its relation to the whole astigmatism. Careful study through a number of years, examination of several thousand eyes with the aid of Javal's ophthalmometer, comparative researches with Helmholtz's ophthalmometer have resulted for me the following belief, which is also the opinion of most of the men who have directed their attention to this point:

1. Static astigmatism of the lens, that is astigmatism produced by the lens in its condition of rest is a comparatively very rare thing; very likely oblique position of the lens relative to the axis of vision is the cause. It is a remarkable occurrence that this condition was present in the eye of Thomas Young, the discoverer of the so-called regular astigmatism.

2. In the eyes of young people up to 35 years of age there is dynamic astigmatism of the lens present; that is astigmatism based upon involuntary irregular contractions of the ciliary muscle. This dynamic astigmatism of the lens is opposite to the astigmatism of the cornea so as to lessen its amount in a certain various degree. It does not change the axis of astigmatism, so that the axis of astigmatism of the whole eye is invariably coincident with that found in the cor-

nea. For older people with little or no accommodation, also in such young ones who have used correcting cylindric glasses for a certain time, we find very little or no difference between astigmatism of the whole eye and astigmatism of the cornea; in these eyes the asymmetric spasm of the ciliary muscle has subsided. Similar to the spasm of accommodation in hypermetropes subsiding either by age or by constant use of correcting glasses.

3. I have found only a few single cases amongst a great number of eyes where the axis of the total astigmatism were not coincident with the axis of corneal astigmatism. This is due very likely either to oblique position of the lens or irregular swelling of the lens in beginning cataract.

I have to add a few words about the comparative merits of three objective tests for estimating astigmatism—retinoscopy, ophthalmoscope, ophthalmometer—letting aside all the subjective ones, which if not supported and preceded by one of the objective tests take up much of your time and do not give you the feeling of surety absolutely necessary in dioptric work.

Retinoscopy might be said to be the only really accurate objective method to estimate total astigmatism of the eye together with the refraction. However, it takes much time, and for detection of low degrees of optic errors considerable practice is necessary. The chief objection to me is the circumstantial proceeding of the test and the necessity of dilating the pupils with atropia or homatropia if an accurate result shall be obtained.

As to the ophthalmoscope it has its enthusiasts, who believe themselves able to determine astigmatism with the aid of this instrument. I admit that we can detect astigmatism with the ophthalmoscope, tell if the vertical or the horizontal meridian is the stronger refracting, and how much about the amount of the astigmatism might be. We cannot find the chief axis accurately; in some cases we cannot find the amount of astigmatism with sufficient accuracy. That refers to every observer, however skilful he might be in the use of the ophthalmoscope—and that because it does not depend on the skill but on the chance of circumstances. If vessels happen to run in the chief axis, one can determine the astigmatism. If they do not happen to run there, accurate determination of astigmatism with this method is not feasible.

The ophthalmometer does not require any dilatation of pupils and is not dependent on the chance of circumstances. In less than one minute you can tell with perfect accuracy if there is astigmatism in an eye, you know exactly within 5° how the axis is situated, you know very approximately the amount of astigmatism. You have nothing to do than to place the cylindric glass—

it does not matter if positive or negative—in front of the patient's eye, and having so corrected the astigmatism you will find it easy to find the refraction.

Javal's ophthalmometer furnishes the greatest accuracy in combination with greatest rapidity of work, and, therefore, it is the instrument of the future.

ANTIRABIC INOCULATIONS.

SENSATIONS EXPERIENCED BY INOCULATED PERSONS. HOW IMMUNITY IS ATTAINED.

Read by Title in the Section of Practice of Medicine, Materia Medica and Physiology, at the Forty first Annual Meeting of the American Medical Association, at Nashville, Tenn., May, 1890.

BY PAUL GIBLER, M.D.,

DIRECTOR OF THE PASTEUR INSTITUTE OF NEW YORK

More than ten thousand people have been inoculated during the five years in which the Pasteurian inoculations have been practiced. Among the number were a few doctors; nevertheless, there does not, as far as my knowledge goes, exist any detailed narrative of the phenomena noticed in those who have submitted to the preventive treatment for rabies after having been bitten. I have therefore thought that it would prove interesting for the study of immunity in general, and as a contribution to the history of this system of treatment in particular, to make known some of my observations.

Following in the steps of several doctors, either directors or assistants in antirabic institutions, who did so to guard against a possible accidental inoculation during their daily manipulations of virulent matter, I inoculated myself as well as two of my assistants, Messrs. Roger and De Monchy. A young lad attached to the laboratory was likewise inoculated. But I must here and at once make the following remark, that whereas the lad complained only of local sensibility, of fatigue, and of a little nocturnal agitation, we, who are more accustomed to observations, made several which I think are worthy of record.

The series of inoculations which I practiced on myself and on my two aids, began March 27, 1890, with marrow of the fourteenth day, and ended on the roth of April following, with matter of the second day.

The subcutaneous injections of the first four days were followed by a slight irritation, which, in one of us, extended so far as to redness of the tegumentum *in loco*, but without induration. During the night, sleep was somewhat disturbed by the sensitiveness of the lateral part of the lumbar regions, viz.: at the spot of the inoculations. During the first ten days, the symptoms were about the same. The temperature of the body rose slightly, but it cannot be said whether this slight febrile motion was caused through and by the injected matter, or whether it was the result of the

slight inflammation caused by the injection itself. These symptoms were considerably modified by hot baths of lengthy duration. Towards the tenth day, the tissues seem to have accustomed themselves to the injected liquid; the reaction was less acute, the pain decreased, and three days after the last injection there remained, so to speak, hardly any local traces of the fifteen injections made on each side.

Thus far, I have not said anything to explain the working of the immunity, but I will now take up the subject. How, then, is immunity obtained?

In a book I published last year ("Analyse des Choses," Dentu, éditeur, Paris) I propounded a theory which, according to my belief, may be of use to explain the hitherto mysterious property, common alike to man and to animals, of resisting the inroads of certain diseases when once attacked by them. In the living body, what is there that resists the development of the infectious figured elements which have reached the body from the outside? Evidently it is the figured elements which make up that body—in other terms, it is the living cell. For me, immunity is a phenomenon of cellular memory. The cellulæ are small individual beings, endowed proportionately with the constituting principles of the living being, such as we know it. As such, they enjoy the faculty of memory, and each time that they are attacked by a malady, they remember—automatically, if you like—but still they remember how they have gotten rid of the intruder (I mean the microbe) which attacked them, and when next assailed, they know immediately what measures are necessary to prevent the enemy from retaining a hold on them.

I do not desire to dwell any further on this theory. It is sufficient for my purpose to have indicated it; I will only remark that the recent works of Metchnikoff on the part played by the white globules in the case of inflammation produced by bacteria, certainly go to strengthen that theory. I will now try to show, by means of the three cases that I am about to analyze, that rabies, which is a malady affecting principally the nervous centres, is no exception to this rule.

In order that the nervous centres be protected against a mortal attack of rabies, it is necessary that, in order to forestall the progress of the microbe, other microbes of the same species, but attenuated, should be placed in contact with the cells of the spinal cord and of the brain. Let me make the passing remark, that the first subcutaneous injections are made with matter the prolonged dessication of which has caused its virulence to disappear, but it is not unreasonable to admit that the nervous cell must be influenced, in a measure, by the ptomaines secreted by the hydrophobic microbe, and that this reasonably gives it a certain degree of power to resist (through being accustomed to its secretions) the attack of

microbes at first weak, then more and more virulent, when introduced by the successive inoculations. When, after having followed (as shown by experience) the nervous fibres which from the bitten spot go to the cord and to the brain, the infectious germ reaches the nervous cells of the cerebro-spinal axis, it finds them prepared, hardened against its attack, and it can do them no injury. Such is immunity.

What goes to demonstrate that during antirabic inoculation things take place as I have just described, is that my two assistants and myself experienced, during and after the inoculations, a series of phenomena indicating that certain departments of the nervous system were stimulated into activity by some unusual excitement. For my part, during the days when I took the last inoculation, and a few days after, I observed a greater activity of the salivary glands; several times a day I felt saliva welling from the submaxillary glands, and from the parotid canal, my mouth filled with saliva and I was obliged to eject it. During the night I was obliged to urinate, which is not my usual custom. These symptoms were the same in the case of my assistants, which evidently shows a sign of excitation of the medulla oblongata. I recall that in 1884, in a pamphlet on hydrophobia ("Recherches sur la rage et sur son traitement," Allatin and Houzeau, publishers, Paris), I have shown that *polyuria* was a frequent symptom of rabbits inoculated with the virus of hydrophobia, at the moment their nervous system was invaded by the germs. During the last week of the treatment, and the week following, I felt a certain heaviness of the head and an inability to work. These symptoms were equally experienced by MM. Roger and De Monchy, with these additional ones: On the fifth day (inoculated with the marrow of the sixth day), M. Roger complained of a sudden pain in the right side, lasting about half an hour. On the eighth day (inoculated with the matter of the fourth day), he experienced dizziness, which lasted intermittently for fifteen days. The twelfth day, he felt pain in the lumbar region, extending as far as the right testicle. On the fourteenth day the vertigo continued, accompanied by buzzing in the ears, which rendered walking difficult. But since this treatment, M. Roger assures me that he has been relieved of a chronic dyspepsia accompanied by pyrosis. The alvine functions are also more regular. M. De Monchy was more affected by nervous troubles. From the second injection, he felt pain in the nape of the neck; on the fifth day these pains spread into the brachial plexuses. After the ninth inoculation, some fulgurating pains were experienced in the region of the left crural nerve. On the twelfth day, he suffered a frontal cephalalgia and an exacerbation of the pains at the nape of the neck. These symptoms continued for about fifteen days after the

treatment, accompanied by unusual sexual excitement, sadness, undefined preoccupation, and unlocalized pains. The appetite was always good. Finally, MM. Roger and De Monchy were affected, on or about the fifteenth day following the last inoculations, by pains in the spots where the injections were made. These pains were so acute as to suddenly awaken them in the middle of the night. I call attention to this last fact, because in one case, where a person inoculated died of hydrophobia, in spite of the treatment, the adversaries of the Pasteur method took advantage of this fact—that the patient had complained of suffering at the spot of the inoculation—to pretend that hydrophobia had been communicated to him by these inoculations. One sees, however, that these injections are able to cause acute pain some time after they have been made, without determining hydrophobia.

To-day, May 19, nearly a month and a half after the last inoculation, we are, all three, in a state of health as satisfactory as possible. I will add that the sixteen persons who have been inoculated at the New York Pasteur Institute in the two months following its opening, are enjoying good health, whilst several domestic animals bitten by the same dogs that attacked several of these patients, have died of hydrophobia. A man bitten by one of these dogs, and not treated at the Institute, has also died of hydrophobia.

I am happy to make known these facts, and I shall be still happier if, by the application of the method of my illustrious teacher, M. Pasteur—the method which is so successful in Europe—I am able on this side of the Atlantic to preserve the greatest number of persons possible from the frightful death which is the consequence of hydrophobia.

A PECULIAR CASE OF ADDISON'S DISEASE.

Read in the Section of Dermatology and Syphiligraphy at the Forty-first Annual Meeting of the American Medical Association, Nashville, Tenn., May, 1890.

BY A. H. OHMANN-DUMESNIL,

PROFESSOR OF DERMATOLOGY IN THE ST. LOUIS COLLEGE OF PHYSICIANS AND SURGEONS.

Despite the fact that the literature of Addison's disease is vast and that much has been written upon this peculiar affection, its clinical characteristics and its pathology, each new case which is reported has a certain interest attaching to it which is certain to attract more or less attention. I do not purpose writing an exhaustive paper upon the subject, but merely wish to place upon record a case which proved interesting to me from the fact that a certain symptom presented itself which I have not found recorded in connection with this affection. I wish to state, however, that my search has been by no means exhaustive, and that similar cases might have escap-

ed me in my rather rapid review of a portion of the literature of the subject. This symptom to which I will call attention later on in a more explicit manner is one which I deem of some importance, as it confirms the view that Addison's disease is primarily and essentially an affection of the sympathetic nervous system. If we can positively determine this to be a fact there may be found some means of arresting the disease even if the pigmentation can not be caused to disappear. As the trouble is one which almost invariably terminates fatally, such an advance in the curative management would be a triumph in therapeutics.

That not more is known of Addison's disease is probably due to the fact that it is an affection not often observed. I have had an opportunity of observing but two cases, in one of which the history was such as we ordinarily find it, whereas in the other a few points existed which added interest and which have led me to present a short history and clinical record which is as follows:

Case 1.—On February 6 of this year I was requested by Dr. W. W. Graves, of this city, to see a case of Addison's disease. The patient was a man of forty-six who gave the following history: While employed in a grain elevator in Memphis, Tenn., he became aware of a general feeling of malaise. This "bad feeling" as he expressed it became so great, that as soon as he felt able to do so, he left for St. Louis. The beginning of this attack was about October 15, 1889. The bronzing of the skin was hardly noticed at this time but it progressed steadily. He arrived in St. Louis about December 20, and a week later it was noticed that he perspired very freely over the whole body and that the sweat had a most intense and disgusting odor. So marked was this that the doors and windows had to be opened. The whole house was permeated by this smell, which resembled that of carrion. The bromidrosis gradually disappeared and the amount of sweat diminished. Family history good.

At the time I examined the man I found him well developed—perhaps slightly emaciated, but not perceptibly so. Expression of face dull. He was still feeling rather weak although he had improved somewhat of late. He complained of a pain in the pit of the stomach, but pressure exercised in this region did not elicit any pain. He occasionally "bloated," and the tympanitis would become so great as to distress him much. He would be unable to put on his clothing, and he stated that it came on suddenly. Pressure in the back over the areas of the kidneys and suprarenal capsules did not elicit any pain. The patient was of a nervous disposition and had always been so.

Inspection showed that the man had a good supply of hair of a dark-brown color—almost black. He stated, however, and was corrobor-

ated in this by his sister, that before his present illness his hair was of a light color—that he was a blonde. The skin of this individual was apparently of normal thickness, no more than the usual moisture being perceptible. In fact it appeared perfectly normal with the exception of one thing—the color. The whites of the eyes and the mucous membrane of the mouth were devoid of any adventitious pigmentation.

The entire integument with the exception of that covering the head and the hands was of a marked brownish-bronze tint. The chest seemed to be of a somewhat slightly darker hue than the back. Disseminated throughout the affected area darker macules of various sizes could be observed. The areolæ about the nipples, the axillæ, perineum and internatal field was also darker than the general surface. On the other hand, that portion of skin lying over the scapulæ was lighter in color. A few small scars existed upon the chest and these were whitish. On the chest and back there existed numerous white macules of the size and shape of small oats. These were numerous, more particularly upon the chest and upon the forearms. The patient stated that these were small scars from wounds made by the grain which scratched him while at work in the bins of the elevator. While this appeared to be a very plausible explanation to account for the presence of these spots, close inspection failed to furnish any satisfactory evidence of their being scars; and, as excision of a portion of the integument was not permitted a resort to microscopical examination could not be made in order to obtain confirmatory evidence.

That Addison's disease is due to some disturbance of the sympathetic nervous system there seems to be no reason to doubt. The subjective symptoms which are noted are of a nature to point to such a cause, and the bronzing of the skin is another sequence dependent upon the same origin. It is pretty well established at the present day that many affections, characterized by an increase in the amount of pigment of the skin, are due to disturbed sympathetic innervation. Crocker states that the study of Addison's disease has made it highly probable that, whenever the abdominal sympathetic, especially the solar plexus, is irritated general pigmentation is likely to ensue. Greenhow and McCall Anderson do not look upon the symptoms as dependent upon destruction of the supra-renal capsules but upon the extension of the morbid process to the neighboring parts, especially to the solar plexus and semi-lunar ganglia. The general consensus of authorities of to-day is that there exists involvement of the sympathetic nervous system.

That this process is a severe one the general prostration and rapidly fatal termination of a certain number of cases show very plainly. But, in

addition to this, we have anatomical proof furnished in the profound alterations observed in the suprarenal capsules, in the greater number of cases in which necropsy has been performed. Addison was not far from the truth when he stated that the disease was due to these alterations in the capsules—he builded better than he knew. The remarkable investigations and demonstrations of modern investigators have conclusively shown that the suprarenal capsules are ganglia of the sympathetic nervous system directly connected with the solar plexus and semi-lunar ganglia. When we take into consideration the degenerative changes observed in the capsules, in some cases, there can be no room left to doubt that the involvement is a very serious one. This discovery also easily accounts for the fact that, at some post-mortem examinations, the capsules were found to have suffered no change, a circumstance which would seem to indicate that the process begins most probably in the ganglia situated higher up.

To make a short digression. It is admitted on the part of all authors that functional disturbances of the glands of the skin are also dependent upon disturbed sympathetic innervation. That sympathetic nerves preside over glandular functions is admitted and the glands of the skin are subject to the general law. This is especially true of those disturbances of function characterized by an increased amount of secretion. Prominent among functional cutaneous disorders is hyperidrosis, of which bromidrosis is merely a variety in the majority of cases. Whether the odor be due to the bacterium *foetidus*, to chemical decomposition, or to direct nervous influence as maintained by E. Monin, we need not consider here. The main point to bear in mind is the increased amount of sweat. This, when universal, denotes a more profound implication of the nervous system than when localized in some particular area.

In the case which I have outlined above there existed for some little time a general bromidrosis, indicating a rather serious involvement of the sympathetic nervous system. The intensity of the odor also tended to show that the process was a severe one. The sudden onset and as sudden disappearance would further go to support the claim of its nervous origin. The presence of microorganisms or of chemical decomposition could hardly be claimed although either one would not militate against the assumption of a neurotic origin for the hyperidrosis.

The fact of the presence of this symptom is interesting on account of its rarity in connection with Addison's disease and because, as stated above, it shows the profound involvement of the sympathetic nervous system which must have existed in the case. We find then that the skin is pigmented and that the functions of a set

of glands are also changed. In other words, two manifestations of an entirely dissimilar character and which we are accustomed to study separately are here found to be coincident and, beyond any doubt, dependent upon a common origin.

The lack of time and opportunity have prevented my making a study of this question. There is no doubt, whatever, in my mind that other causes of a like nature have occurred, but the importance of the graver malady as well as its comparative rarity completely overshadowed the importance of the symptom which probably is one of frequent occurrence—the bromidrosis.

A feature which was observed and which might partially account for the foetid sweat is the fact noted in the history that there was no pigmentation of the mucous membrane of the mouth. The explanation that this would furnish would be that the energy usually directed to the mucous membrane had been diverted to other channels, or, in other words, the perverted innervation was transferred from the mucous membrane to its external congener, the skin. This process is not an unusual one. We observe it, for instance, in erythema nodosum in which the eruption rapidly disappears to give way to a bronchitis, and this in turn leaves to be followed by a recurrence of the eruption.

In this short clinical contribution I have merely desired to sketch an interesting condition, and, so far as I know, a peculiar case. While the literature of Addison's disease is plentiful there is really but little that is tangible. In the light of modern anatomical investigations, however, we can see the promise of great improvement in the future therapeutical measures to be employed, as well as in the more thorough and intelligent pathological investigations which will be made.

5 South Broadway.

NOTES ON A CASE OF TETANY.

Read in the Section of Diseases of Children at the Forty-first Annual Meeting of the American Medical Association, at Nashville, Tenn., May, 1890.

BY JACOB SCHNECK, M.D.,

OF MT. CARMEL, ILL.

Under the various names of tetany, tetanella, idiopathic muscular spasm, and carpo-pedal spasm, we find described a variety of cases which have, as prominent symptoms, more or less tonic contractions of the muscles of various parts of the body, beginning usually at the extremities and passing, in somewhat regular succession, to the muscles of the body and head. The consciousness of the individual is not disturbed during the paroxysm.

The symptoms of this disease trench closely on those of a number of the functional neuroses; and it is probable that many of the cases reported un-

der this heading are really spasms due to reflex irritation, caused by teething or a disordered condition of the alimentary canal; or to irritation produced in the nerve-centres by the distal ends of nerves, leading to them, being involved in cicatrices or other inflammatory products; these cases are permanently cured by removing the cause of the irritation. It is also probable that in this category cases have been reported which should be described under the title of hysteria.

The causes usually assigned as producing tetany are exceedingly numerous and various; chronic and debilitating diarrhoea, lactation and pregnancy, stand first, perhaps. Typhoid fever, rheumatism, measles, pneumonia, Bright's disease, small-pox, cholera, malaria, exposure to cold, anæmia, sexual excesses, alcoholism, excision of thyroid gland, intestinal worms, disordered stomach from undigested food, lead poisoning, and epidemic influences, have all been thought to be causes. In reading over the reports of some cases one is led to believe that many of the above named causes are only coincidences, and had nothing to do with inducing the disease. An important diagnostic point of this disease is the tendon-reflex action produced by pressing on the large vessels and nerves (Trousseau's symptoms). This is not always present, but in no other disease has it ever been recorded.

Chvostek was the first to direct attention to the increased mechanical excitability of the muscles and nerves in this disease; he found in many cases that during the latent period the calf-muscles were slightly contracted. During the paroxysms consciousness is intact; and the muscular spasms are tonic.

The present light on the pathology of this disease points to the nerve-centres as the site of disturbance.

Herz thought the disease was due to anæmia of the spinal cord. A. Jacobi attributes it to meningeal hyperæmia. Gowers teaches that it is probable that the primary pathological lesion is in the motor cells of the cerebral and spinal structures; and that thus is explained the tendon-reflex symptoms usually present in this disease. Whatever the pathology may be, there appears to be an inability to inhibit in the nervous and muscular organs.

I am induced to offer these notes on the following case for three principal reasons:

1. Tetany is a disease whose limits and symptomatology are not well defined.

2. The case which fell into my hands had the signs, usually given as belonging to this disease, well-marked. In addition there were other prominent symptoms, which I do not find given in any of the accounts of the disease which I have consulted, viz.: the absence of normal reflex excitability in the extensor muscles, as shown by the want of the tendon reflex action of the exten-

sors of both the upper and lower extremities. And also the Argyll-Robertson pupil; both of which signs improved and became normal *pari passu* with the diminution of the number and severity of the attacks.

3. For the purpose of putting on record the treatment and its result, so that the profession may give it a further trial.

Case.—Oct. 23, 1889, Clara I. Brine, of Grayville, Ill., was brought to my office; she being a well developed, bright and healthy looking girl of ten years. The mother and father, who accompanied her, were both above the average in size, of intelligent bearing, and barring a few slight attacks of unimportant sickness, had always been healthy. Their five other children were all well developed. Clara had been healthy until three years since, when she suffered from some ailment of the bladder, but which was of temporary duration. Near two years ago, while in her usual health, she was suddenly seized with a swimming sensation and fell backwards on the floor; not, however, losing consciousness. Attacks of this character occurred at frequent intervals for nearly one year. She usually avoided falling by holding to some object until the sensation passed off. The physician who treated her told the parents the attacks were caused by some heart disease. Gradually these paroxysms were ushered in, or preceded, by more or less tonic cramps of the lower limbs; felt most severely at the knees; when the feet were involved, the toes would be drawn together and towards the sole of the foot. Later the upper extremities, and finally the jaws, became involved in the tonic contractions; but as they did so, the dizziness became less and the cramps of the lower limbs grew lighter, and for the last six months had ceased entirely; while those of the upper extremities, neck, and jaws, had grown correspondingly more severe and more frequent; averaging about ten a day; being most frequent during the forenoon, but never occurring during sleep. In some of the most severe attacks there was decided opisthotonos. In all those attacks consciousness was never lost. During the past year she had been treated by a physician for epilepsy. During the time of her visit to my office, while I was familiarizing myself with a history of her case, she was seized with a severe paroxysm, while in the midst of a sentence, and when not in the least excited. It came without any premonition and involved both upper extremities, and the muscles of the neck and jaws, in the order named. The muscles were so rigid that she was unable to speak, swallow, or move the head; the elbow-joints were flexed and the arms held rigidly from the side; the right hand was closed into a hard fist; the fingers of the left were first irregularly over-extended, then drawn together, the two outer coming under the two inner ones, while

the thumb was drawn down to the palm, forming the obstetric hand. The face became full and flushed. This condition lasted near two minutes.

The paroxysm was accompanied by radiating pains in the parts involved. "A sharp pain, with other pains shooting out from it," was her expression. She complained, after the attack, of numbness and formication in the muscles affected, also of ringing in the ears. Examination revealed slight cedema of the hands and face; tendon-reflex of knees and wrist entirely absent; Argyll-Robertson pupil well marked; pulse 120 per minute, small and hard. Had always suffered slightly from constipation; appetite good; sleeps well and quietly; temperature normal. There was no tenderness along the spine or over the ovaries, or any other part of the body; not subject to excessive perspiration; nervo-muscular irritability could not be produced by raking finger-nail in front of ear; there was no nausea or vomiting after attacks; she had not been a bottle-fed infant; had never suffered from rickets or laryngismus; did not pass large quantities of urine after paroxysms; pressure on the large blood-vessels or nerves did not bring on an attack; applying cold water to hands failed to cut short a paroxysm.

The treatment and progress of the case were as follows:

October 23, 1889.

R. Liquor potass. arsenitis, ʒ j

Sodæ brom., ʒ ss.

Aqua, ad. ʒ iv. m.

Sig.—One teaspoonful after meals.

R. Antifebrin, gr. xxx.

Divide into 15 capsules.

Sig.—One capsule before meals.

October 31, symptoms very slightly improved; averaged five paroxysms per day since the former visit; pulse 120; tendon-reflex of the extremities imperceptible. Argyll-Robertson pupil still marked.

Thinking she might be afflicted with worms, I gave the following:

R. Hydrarg. chlor. mitis, gr. ij.

Sodæ bicarb. santonine, āā gr. vj.

Mix fiat chart No. vj.

Sig.—One powder at 4, 6 and 8 P.M. on consecutive nights.

Then to begin the following:

R. Fl. ext. conium, ʒ j.

Sig.—Eight drops after each meal.

R. Glonoin, ʒ iv.

Sig.—Two drops two hours after meals.

Nov. 12.—Had passed no worms from santonine. During the first six days she had nineteen paroxysms, and none during the last five. Continues the two last prescriptions.

Dec. 4.—Had no paroxysm since last visit; tendon reflex of both upper and lower extremities nearly normal; pupil responds properly to light. Continued the nitro-glycerine and stopped the conium.

Feb. 3, 1890.—Had no attack since last report; continued treatment.

May 10, 1890.—Reports herself as entirely well, and has taken no medicine for two months.

DIAGNOSIS AND OPERATIVE TREATMENT OF GUNSHOT WOUNDS OF THE STOMACH AND INTESTINES.

Read by Invitation in the Surgical Section of the Tenth International Medical Congress, August 8, 1890.

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(Concluded from p. 363.)

2. Treatment of Gunshot Wounds of the Stomach and Intestines.

The propriety of surgical interference in cases of gunshot wounds of the stomach and intestines will depend on one of two things:

1. Dangerous internal hæmorrhage.
2. Visceral wounds of the stomach or intestines large enough to permit of extravasation and the escape of hydrogen gas on applying the diagnostic test.

Alarming intraperitoneal hæmorrhage furnishes an urgent indication for treatment by laparotomy irrespective of the existence of the visceral lesions of the gastro-intestinal canal. In these days of aggressive surgery it would indeed be unjustifiable to permit a patient to die slowly but surely from hæmorrhage from an intra-abdominal wound which in itself is amenable to successful treatment by prompt surgical means.

The signs and symptoms of profuse internal hæmorrhage come on soon after the injury has been inflicted, and are so plain and significant that they can hardly be misinterpreted even upon a brief and superficial examination. The progressive acute anæmia, the conditions of the pupils and pulse, and the complexus of nervous symptoms which attend alarming internal hæmorrhage present a clinical picture which, when once seen, is never forgotten and always recognized.

In such cases no time should be lost in looking for evidences of the existence of wounds of the gastro-intestinal canal, or in applying the hydrogen gas test, as the prime and most urgent indication is to gain access to the bleeding vessels by opening the abdomen in the median line, and then to arrest the hæmorrhage at once by compression until the bleeding points can be secured by ligation or the antiseptic tamponnade. After the hæmorrhage has been arrested, the whole gastro-intestinal canal, or such part of it as, from the course of the bullet, is known to have been exposed to injury, is tested by insufflation of hydrogen gas for the purpose of ascertaining in as

short a time as possible, the existence, location and number of perforations.

In cases in which, on account of the absence of dangerous hæmorrhage, the symptoms are less urgent, it is important to determine the necessity of treatment by laparotomy by resorting to the hydrogen gas test for the purpose of diagnosing the existence and size of perforations of the gastro-intestinal canal. If through insufflation can be made, it is proof positive that no perforations exist, or, if present, that they are too small for extravasation to occur, and in the absence of other indications for abdominal section it is advisable to pursue a conservative course of treatment. Such patients are given an opiate to diminish the peristaltic action of the bowels; an absolute diet is ordered and rest in bed enforced for at least a week, while infection from without is prevented by subjecting the external wound to rigid antiseptic treatment.

If the hydrogen gas test, either by rectal insufflation or direct inflation of the stomach, yields a positive result, sufficient and reliable information has been gained to warrant laparotomy, as the surgeon has then satisfied himself that he has to deal with an injury which, if not properly treated, is almost certain to result in the death of the patient.

Laparotomy for Gunshot Wounds of the Stomach and Intestines.

I have already insisted that in every perforating gunshot wound of the abdomen, all necessary preparations for laparotomy should be made before the existence of visceral wounds of the stomach or intestines has been demonstrated by the application of the hydrogen gas test, as the latter procedure necessitates the administration of an anæsthetic. The stomach can be inflated without an anæsthetic and the existence or absence of perforations demonstrated before any definite plan of treatment is proposed, but rectal insufflation of hydrogen gas should never be undertaken in the diagnosis of gunshot wounds of the gastro-intestinal canal without complete anæsthesia.

Before I was able to demonstrate the existence of visceral wounds of the stomach and intestines without opening the abdominal cavity, I never succeeded in obtaining the consent of the patient and friends to make a laparotomy in cases of gunshot wounds of the abdomen; but since I have been able to tell the people that the course to be pursued will depend upon the result of the test, I have not met with a single refusal. The hydrogen gas flame at the wound of entrance is an argument more potent than words in convincing laymen of the necessity of active surgical interference. If the public understands that the abdomen will only be opened after the surgeon has satisfied himself and has demonstrated the existence of a mortal injury, the patient and his friends will be only too anxious to avail them-

selves of the benefits to be derived from the only resource which promises any hope of saving life.

Medico-Legal Responsibilities in the Performance of Laparotomy in the Treatment of Perforating Wounds of the Abdomen.

As in private practice the treatment of penetrating wounds of the abdomen always involves great medico-legal responsibilities, it becomes of the greatest importance to arrive at positive and reliable conclusions in reference to the character of the injury before the patient is subjected to the additional risks to life incident to an abdominal section.

We will suppose a case. In a quarrel a man is shot in the abdomen. The assailant is placed under arrest. The surgeon who is called establishes the fact that the bullet has entered the abdominal cavity, and from the point of entrance and its probable direction he has reason to believe that it has wounded some part of the gastro-intestinal canal, and he concludes to verify his diagnosis by an exploratory laparotomy; the operation is performed, the gastro-intestinal canal is examined in its whole length, but after the most careful inspection no visceral wound is found. Over an hour is consumed in the examination, during which time the peritoneal cavity is exposed more or less to infection. The wound is closed and the patient dies of shock in two or three hours, or of septic peritonitis on the third or fourth day. The attorney for the State charges the defendant with murder. During the trial the defense will very naturally raise the questions: "Did the man die from the effects of the injury or the operation?" "Shall the defendant be tried for assault and battery or for murder?" During the trial the attending surgeon is made a target for a volley of a medley of scientific and unscientific questions by the cunning attorney for the defense in the attempt to save his client from the gallows or a sentence of imprisonment in the State Prison for life, at the expense of the reputation of the surgeon and the respect and good name of the profession he represents.

This picture is not overdrawn. Such cases have happened and will happen again. It is entirely different if the surgeon can, by means of the hydrogen gas test, ascertain the existence or absence of fatal complications without subjecting the patient to any additional risks to life. If the test yields a positive result, the indications for an operation are clear, and are understood and appreciated by laymen who may serve on the jury.

If a laparotomy, performed in the treatment of a mortal injury, is followed by a fatal termination, the result must be charged to the person who inflicted the injury and not to the surgeon who failed in his attempt to save his patient from certain death. If the operation proves successful, the surgeon has not only saved a life, but

he has been at the same time instrumental in diminishing the severity of the sentence of the one who inflicted the injury.

Preparation of the Patient.

A patient suffering from a perforating wound of the abdomen should be properly prepared before he is subjected to examination by the hydrogen gas test, and, if this yields a positive result, to laparotomy. If the stomach is filled with food, a salt water emetic should be given for the purpose of evacuating the stomach. The rectum and colon should be emptied by a copious enema of lukewarm water to which may be added a tablespoonful of common salt. These precautions greatly facilitate the application of the hydrogen gas test, and guard against possible sources of error in diagnosis; at the same time they leave the gastro-intestinal canal in a better condition for operative treatment and a speedy repair of the sutured wounds. A hypodermatic injection of one-fourth of a grain of morphia and one one-hundredth of a grain of atropia should be given shortly before the anæsthetic is administered, as these drugs in the doses specified assist the action of the anæsthetic, secure rest for the intestines and sustain the action of the heart. If the patient is much prostrated two ounces of whisky diluted with four ounces of warm water should be given *per rectum*. The external wound and the whole abdomen must be thoroughly disinfected.

Operating Room.

The room in which the examination is to be made, and possibly laparotomy performed, should be cleared of all draperies, pictures and unnecessary furniture, and the temperature should not be less than 80° F. It is a good plan to sprinkle the bare floor, walls and ceiling with a strong solution of corrosive sublimate or carbolic acid. An ordinary table covered with blankets and a clean sheet will answer for an operating table. Wash basins, dishes and pitchers are to be sterilized by heat. Plenty of aseptic sponges, clean towels, and hot sterilized water must be provided. A hypodermic syringe and the necessary stimulants must never be absent. A sufficient quantity of hydrogen gas can be generated in from five to fifteen minutes. The articles necessary for applying the hydrogen gas test are a stomach tube and a four gallon rubber balloon in which the gas is stored, which is connected by four or six feet of rubber tubing with the short rectal tube, for which the vaginal tip of an ordinary Davidson's syringe can be used. Wax tapers are useful in lighting the escaping gas.

Incision.

Great diversity of opinion still prevails in regard to where the incision should be made. In the majority of cases the median incision affords

advantages which give it the preference. It should always be selected in cases of gunshot wounds of the stomach, and where the wound of entrance is located near the median line, and where it is known that the bullet has taken an antero-posterior course. A median incision affords most ready access in the treatment of wounds of the small intestine.

The result of the hydrogen gas test will prove of much value in deciding the location of the incision. If, in gunshot wounds of the upper portion of the abdomen, direct inflation of the stomach through an elastic tube reveals the existence of perforation of this organ, the median incision should be selected. If rectal insufflation yields a positive result before the gas has passed the ileo-cæcal valve, the incision should be made over the wounded portion of the colon, which is usually indicated by the course of the bullet. A wound in the transverse colon can be found and dealt with most efficiently through a median incision, while perforation of the cæcum or ascending colon calls for a lateral incision directly over the wounded organ, while a lateral incision on the left side is indicated if from the direction of the bullet it is evident or probable that the colon below the splenic flexure is the seat of the visceral injury. In the treatment of a gunshot wound of the colon through a lateral incision it is absolutely necessary to make the incision sufficiently long so as not only to facilitate the finding and suturing of the perforation, but also to enable the surgeon to search for and treat additional injuries. By suturing the external wound with several rows of buried sutures there is but little danger of a ventral hernia following.

Laparotomy performed for the arrest of dangerous hæmorrhage should always be done by making a long median incision which will afford the most direct access to the different sources of hæmorrhage. Very often it will be advisable to make the incision in the line of the wound of entrance, more especially in cases where a lateral incision is indicated from the location of the wound, from the course of the bullet, and from the results obtained by application of the hydrogen gas test.

Arrest of Hæmorrhage.

In perforating wounds of the abdomen profuse hæmorrhage is more frequently of parenchymatous and venous than of arterial origin. Gunshot wounds of the liver, spleen, kidneys and the mesentery give rise to profuse and often fatal hæmorrhage. After opening of the peritoneal cavity it is often very difficult to find the bleeding points, as the blood accumulates as rapidly as it is sponged out, and it becomes necessary to resort to special means in order to arrest the profuse bleeding sufficiently to find the source of hæmorrhage.

One of two resources should be employed: 1. Digital compression of the aorta. 2. Packing the abdominal cavity with a number of large sponges. Digital compression of the aorta below the diaphragm can be readily made by an assistant introducing his hand through the abdominal incision, which in such a case must be larger than under ordinary circumstances. Compression of the abdominal aorta immediately below the diaphragm will promptly arrest the hæmorrhage from any of the abdominal organs for a sufficient length of time to enable the surgeon to find the source of hæmorrhage and carry out the necessary treatment for its permanent arrest.

Hæmorrhage from a perforated, lacerated kidney may demand a nephrectomy. A similar wound of the liver is cauterized with the actual cautery or tamponned with a long strip of iodoform gauze, one end of which is brought out of the external wound. A wound of the spleen, if the hæmorrhage cannot be arrested by the antiseptic tampon, necessitates splenectomy. Very troublesome hæmorrhage is often met with from wounds of the mesentery.

When multiple perforations of the mesentery and visceral wounds of the stomach or intestines are the source of hæmorrhage, it is a good plan to pack the abdominal cavity with a number of large sponges to each of which a long strip of iodoform gauze is securely tied, these strips being allowed to hang out of the wound in order that none of the sponges may be lost or forgotten in the abdominal cavity after the completion of the operation. The sponges make sufficient pressure to arrest parenchymatous oozing as well as venous hæmorrhage if they are placed at different points against the mesentery and between the intestinal coils. The sponges are removed one by one from below upwards and the bleeding points secured as fast as they are uncovered.

The ligation of mesenteric vessels, both arteries and veins, should be done by applying the ligature *en masse*. Thornton's curved hæmostatic forceps is the most useful instrument for this purpose. Catgut should never be relied upon in tying a mesenteric vessel, as this material, for several reasons which it is not necessary to mention here, is greatly inferior to fine silk. Troublesome hæmorrhage from a large visceral wound of the stomach and intestines is best controlled by hemming the margin of the wound with fine silk. If hæmorrhage is profuse this must be attended to before anything is done in the way of finding or suturing of the visceral wounds.

Search for Perforations.

If the hydrogen gas test has been employed with a positive result before the abdomen was opened, there will be no difficulty experienced in finding the first opening. If the stomach was inflated directly through an elastic tube and the

test has shown the presence of a perforation, a median incision is made from the tip of the ensiform cartilage to the umbilicus and the stomach drawn forward into the wound. If no perforation is found in the anterior wall, the insufflation is repeated, and the escaping gas will direct the surgeon to the perforation. After closing the perforation the stomach is again inflated, and if a second perforation exists it is readily detected by this test. The possibility of the existence of a third perforation should be remembered, consequently a third inflation becomes necessary. A second and a possible third perforation can also be detected by inflating the stomach directly through the first and second perforations.

If the wound implicates the abdominal cavity below the stomach, the hydrogen gas test is applied by insufflation *per rectum*. If the test has yielded a positive result, the lowest perforation is readily found by examining the intestine at a point where the distended and empty portions join, as the leakage of gas through the perforation prevents inflation higher up. In one of my experiments I carried the inflation so far that the intra-abdominal pressure caused by an immense free tympanites not only prevented the inflation of the intestine above the first perforation, but it also forced out the gas from the intestine below the perforation. If, however, the track of the bullet is enlarged down to the peritoneum, as should be done in the diagnosis of all perforating gunshot wounds of the abdomen before the hydrogen gas test is applied, such an occurrence is impossible, as the gas will escape through the external wound as fast as it enters the peritoneal cavity.

If the intestine is found distended below the first discovered perforation, it is an absolute proof that no perforations exist lower down in the intestinal canal, and hence that it is unnecessary to lose any time in looking for perforations in that direction.

As soon as the lowest perforation has been found, rectal insufflation should be suspended. If possible, the perforated portion of the intestine should now be brought forward into the wound, and after emptying the intestine below the perforation as far as possible of its gas, the bowel is compressed below the perforation by an assistant, and the intestine higher up is inflated through the wound. As a matter of course, a perfectly aseptic glass tube should be inserted into the rubber tube instead of the tube used in the rectum. The inflation is now carried as far as the second opening, when the first opening is sutured, and after disinfection the intervening portion of the intestine is replaced in the abdominal cavity. Further inflation is now made through the second opening, and if a third one is found, the second is sutured, and so on until the entire intestinal canal has been thoroughly subjected to the test. By

following this plan extensive eventration is rendered superfluous and the overlooking of a perforation is made absolutely impossible. Extensive eventration in the search for perforations, and undiscovered perforations figure largely as causes of death in gunshot wounds of the abdomen treated by laparotomy, and both of these sources of danger are avoided by a thorough and systematic employment of the hydrogen gas test.

Suturing of Wounds of the Stomach and Intestines.

Trimming the margins of the visceral wounds is not only superfluous, but absolutely harmful, as it requires a useless expenditure of time and may become an additional source of hæmorrhage. The same can be said of the Czerny-Lembert suture. All that is required in the treatment of a visceral wound of the stomach and intestines is to turn the margins of the wound inwards and bring into apposition healthy serous surfaces by a few points of interrupted sero-muscular sutures. Fine aseptic silk should be used for the sutures. It is sufficient to use from four to six sutures to an inch. Wounds of the stomach should be sutured in a line parallel with the long axis of the organ. Wounds of the intestine should be closed transversely, with a view of preventing constriction of the lumen. Defects an inch and a half in length on the convex border can be closed safely in this manner without fear of causing intestinal obstruction, while much smaller defects on the mesenteric side often necessitate a resection, not only because the vascular supply in the corresponding portion of the intestine would be inadequate, but also for the reason that a sufficiently sharp flexion might be produced at the seat of suturing to become a source of intestinal obstruction.

Enterectomy.

Enterectomy often becomes necessary in cases of double perforation, and in marginal wounds of the mesenteric border. If in cases of multiple perforations it becomes necessary to make a double enterectomy, and the intervening portion of the small intestine is not more than two or three feet in length, it is best to resect it at the same time, as the immediate effect of the operation will be less severe than a double resection with a corresponding double enterorrhaphy. The mesentery corresponding to the portion of intestine to be removed should be tied in small sections with fine silk before the bowel is excised.

Restoration of the Continuity of the Intestinal Canal after Enterectomy by Lateral Apposition with Decalcified, Perforated, Moist, Bone Plates.

Cases of gunshot wounds of the intestines requiring enterectomy are always grave, and anything which can be done to shorten the operation must add to the chances of recovery. Circular enterorrhaphy requires a great deal of time and is less certain in its results than lateral apposition

with decalcified bone plates, and for these reasons the latter procedure deserves the preference in uniting the bowel after resection for gunshot wounds of the intestine. For the full technique of this part of the operation I must refer the reader to my article read in the Surgical Section of the American Medical Association at its last meeting, and published in *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*, June 14, 1890.

Omental Grafting.

If the bowel at the seat of suturing show evidences of contusion, the line of suturing and the damaged portion of the bowel should be covered by an omental graft, which is fastened in its place on the mesenteric side by passing two catgut sutures in the line of the mesenteric vessels through both ends of the graft and the mesentery, and tying them loosely. Before the graft is planted, the surface of the bowel and the surface of the graft which is to be brought in contact with it are scarified with the point of an aseptic needle.

Irrigation of Abdominal Cavity.

This is only necessary if fæcal extravasation or escape of stomach contents has occurred, an accident which, if it has not occurred before the abdomen has been opened, should be carefully avoided during the manipulation of the wounded intestines. Flushing the peritoneal cavity with warm sterilized water not only clears it of infectious material, but acts at the same time as a stimulant to the flagging circulation. After completion of the irrigation the patient is placed on his side, and in this manner the fluid contents of the abdominal cavity are poured out. The cavity is then rapidly dried with large sponges wrung out of a weak antiseptic solution.

Drainage.

Cases which require irrigation also require drainage. Other indications for drainage are visceral wounds of the liver and wounds of the pancreas, spleen, and kidneys, where extirpation of the wounded part of the organ, or the whole organ is deemed unnecessary, and the existence of parenchymatous hæmorrhage which cannot be remedied by any of the different hæmostatic measures.

Closure of External Incision.

Incisions through the median line are rapidly closed by one row of silk sutures which include all of the tissues of the margins of the wound. Incisions made in any other place are to be closed by two or three rows of deep catgut sutures, and a superficial row of silk sutures.

After-Treatment.

Absolute rest must be strictly enforced. Opium must be given in sufficient doses to quiet the peristaltic action of the intestines. No food should be given by the stomach for at least forty-

eight hours. During this time brandy and water in small doses frequently repeated are agreeable to the patient, they quench thirst and exert a favorable influence upon the circulation. If more active stimulation is required to overcome shock and the effects of hæmorrhage, whiskey, ether, musk or camphor can be injected subcutaneously or *per rectum*, while the peripheral circulation is restored by applying dry heat to the extremities and trunk. Should symptoms of peritonitis set in, a brisk saline cathartic should be given at the end of forty-eight hours, as at this time the intestinal wounds will have become sufficiently united to resist the violent peristalsis provoked by the cathartic, while the removal of the intestinal contents and the absorption of septic material from the peritoneal cavity are not only the most efficient means of cutting short a fatal disease, but also of placing the wounds in the most favorable condition for rapid repair.

If the case progresses favorably, liquid food by the stomach can be allowed at the end of the second day and digestible solid food at the end of the first week. Under ordinary circumstances no effort is made to move the bowels until the end of the fourth or fifth day. If early feeding becomes necessary in marantic or exsanguinated patients, this can be done by rectal alimentation. Patients should not be allowed to leave the bed until the external wound has firmly united throughout, as any imprudence in this direction is liable to be punished by the formation of a ventral hernia. The sutures are removed on the eighth day and the patient is directed to wear an abdominal supporter for several weeks after he has left his bed.

SUGGESTIONS FOR THE CONSIDERATION OF MILITARY AUTHORITIES AND MILITARY SURGEONS.

The object of battle is to kill and disable the combatants until the question of victory is decided in favor of the army which exceeds in numbers, or is superior in courage or more skilled in warfare. Very little has been done so far in the way of aggressive surgical interference for heroes who fell mortally wounded in the line of battle in the defense of their country, their ruler, their families, their homes and their rights. The time has come when in case of war adequate provisions should be made on the field of battle near the rear line for the prompt treatment of perforating gunshot wounds of the abdomen. It is difficult to conceive how many valuable lives have been sacrificed on the field of battle during the innumerable wars recorded in the history of the world which now are within the reach of successful surgical interference. Thousands of lives have been lost from internal hæmorrhage alone which could now be saved by an early laparotomy.

In future wars it is the duty of every civilized

nation to do all that modern surgery can do in the treatment of perforating gunshot wounds of the abdomen on the battle field. Every soldier who has been in active military service can recall instances where comrades dropped in the ranks with a mortal bullet wound of the abdomen, who lived for several hours and died from hæmorrhage, often forgotten and uncared for in the excitement of the conflict. Justice, patriotism, humanity and the present status of abdominal surgery demand that in future wars enough men shall be detailed from each company to convey the severely wounded to the rear of the line of battle, where they can receive prompt and efficient surgical aid, and where, if die they must, the last hour of their life shall be peaceful, surrounded by those who will add to their comfort and administer words of consolation as the immortal spirit leaves the maimed body for the future world.

For the purpose of carrying into effect the modern aggressive treatment of perforating gunshot wounds of the abdomen in military practice, it will be necessary to erect a large tent for every brigade, in a safe place, but sufficiently near the line of battle to be within easy reach. This tent should be heated with gas stoves and provided with all the necessary instruments, dressing material and medicines required in the operative treatment of gunshot wounds of the abdominal viscera. One surgeon specially qualified for his work should be detailed to superintend the surgical work, assisted by a sufficient number of reliable assistants. This tent should be used exclusively for the treatment of perforating wounds of the abdomen.

If, as is so often the case in gunshot wounds of the abdomen made with bullets of large calibre, life is threatened by hæmorrhage, the abdomen, after rapid but thorough disinfection, should be opened at once, and after the bleeding has been arrested, visceral injuries of the gastro-intestinal canal should be sought for by applying the hydrogen gas test in the manner described above. The use of this test will not only shorten the time required in the completion of the operation, but it will also guard against two grave sources of danger—extensive eventration and leaving undiscovered and unsutured perforations. Enterectomy will be more frequently made necessary in military than private practice on account of the large size of projectiles used in warfare as compared with those used in private life. Restoration of the continuity of the intestinal canal after enterectomy for gunshot wounds of the abdomen should be done by a method which saves valuable time and secures the best results—advantages which are gained by the use of decalcified, perforated bone plates. Patients who rally from the operation should subsequently either receive the necessary after-treatment in hospital tents,

or should be later transported with the greatest care to the nearest hospital.

The Correct Diagnosis and Proper Treatment of Gunshot Wounds of the Stomach and Intestines Require a Degree of Skill and Dexterity which can only be Acquired by Experiments on the Lower Animals. Even the minutest descriptions of the details to be observed and applied in the diagnosis and treatment of gunshot wounds of the abdomen are utterly inadequate to prepare a surgeon to interpret correctly the symptoms and signs presented by penetrating gunshot wounds of the abdomen, or to meet the often unexpected emergencies in their treatment. Operative courses on the cadaver are valuable and useful, but they never can take the place of experiments on the living animal. This is more especially true in reference to the use of the hydrogen gas test as a diagnostic measure, and the manual dexterity required in the surgical treatment of internal hæmorrhage and visceral wounds. A certain amount of experimental experience is absolutely required in the preparation of the surgeon for the kind of abdominal work which requires not only courage, good judgment, and a thorough knowledge of every step in diagnosis and treatment, but also a manual dexterity which cannot be acquired in any other way.

CONCLUSIONS.

1. In gunshot wounds of the abdomen, in the absence of external fæcal extravasation and prolapse of the omentum, it is absolutely necessary to establish the fact that penetration has or has not taken place by enlarging the wound down to the peritoneum, if the bullet has entered the peritoneal cavity, or in non-penetrating wounds, sufficiently far to show conclusively that the peritoneal cavity has not been invaded.

2. In a fair percentage of cases a bullet which penetrates the abdominal cavity does not produce visceral injuries which require treatment by laparotomy, and such cases, as a rule, recover without surgical interference.

3. Absence of visceral lesions which require treatment by laparotomy is most frequently met with in perforating gunshot wounds of the abdomen, if the wound of entrance is at or above the level of the umbilicus, and if its course is in an antero-posterior direction.

4. In transverse and oblique gunshot wounds of the abdomen at a point below the level of the umbilicus, multiple perforations of the intestines may be confidently expected.

5. The general and local symptoms, with the exception of external fæcal extravasation, are of absolutely no value in the differential diagnosis between simple penetrating gunshot wounds of the abdomen and penetrating gunshot wounds of the abdomen complicated by serious visceral injuries which demand prompt surgical interference.

6. Alarming internal hæmorrhage caused by perforating gunshot wounds of the abdomen can be recognized by the symptoms which characterize progressive acute anæmia, and by the physical signs due to the presence of fluid in the free peritoneal cavity.

7. Dangerous internal hæmorrhage furnishes a positive and urgent indication for treatment by laparotomy. The incision in such cases should be ample and through the median line.

8. After opening the peritoneal cavity for the treatment of alarming hæmorrhage, temporary hæmostasis should be secured by digital compression of the aorta below the diaphragm, or by packing the abdominal cavity with a requisite number of large sponges until the bleeding points can be discovered and the hæmorrhage arrested by permanent measures.

9. The existence of wounds of the stomach and intestine large enough to permit the escape of the contents of these organs can be infallibly demonstrated by the application of the hydrogen gas test before the abdomen is opened.

10. Direct insufflation of the stomach through an elastic tube is preferable to rectal insufflation as a diagnostic test in all cases where, from the location of the wound of entrance and the probable course of the bullet, there is reason to believe that this organ is the seat of injury.

11. The existence and probable location of gunshot wounds of the intestines can be ascertained by rectal insufflation of hydrogen gas.

12. Through insufflation without evidences of free tympanites or escape of gas through the external wound demonstrates either the absence of perforations, or that if present they are too small for leakage to take place; consequently the result of the test is a strong argument in favor of non-interference.

13. The hydrogen gas test should invariably be relied upon in searching for the perforations after the abdominal cavity has been opened, as this method of examination, if properly and carefully conducted, makes extensive eventration unnecessary, and never fails in revealing every perforation.

14. After opening the abdominal cavity for the treatment of gunshot wounds of the intestines, the lowest perforation is pointed out by rectal insufflation of hydrogen gas, but in the search for additional perforations the inflation should be made directly through the perforation last sutured, while the portion of the intestines which has been tested and the perforation sutured is replaced in the abdominal cavity.

15. The external wound should never be closed until the whole length of the gastro-intestinal canal has been subjected to the hydrogen gas test, in order to guard against the possibility of leaving a perforation undiscovered.

16. The hydrogen gas test under ordinary

circumstances does not cause fæcal extravasation, and consequently does not increase the subsequent risks from peritonitis.

17. Pure hydrogen gas is most suitable for insufflation of the gastro-intestinal canal for diagnostic purposes, as this substance is non-irritating, non-toxic, and possesses valuable inhibitory antiseptic properties, while its exceedingly low specific gravity adds still more to its value when used for this purpose.

18. By following the indications furnished by the hydrogen gas test the surgeon relieves himself of all medico-legal responsibilities in the operative treatment of penetrating gunshot wounds of the abdomen.

19. A gunshot wound of the gastro-intestinal canal sufficiently large to permit escape of the contents of the stomach or intestines must, for all practical purposes, be regarded as a mortal injury, and on this account its treatment by laparotomy is urgently indicated.

20. Laparotomy in the treatment of gunshot wounds of the stomach and intestines should be performed as soon as possible after the infliction of the injury, and always before a septic peritonitis has had time to develop.

21. The closure of bullet wounds of the stomach and intestines is accomplished most speedily, and with a sufficient degree of safety by the application of one row of interrupted sero-muscular sutures of fine aseptic silk.

22. If enterectomy becomes an unavoidable necessity in the treatment of gunshot wounds of the intestines, the continuity of the intestinal canal should be restored by making an anastomosis between the closed ends by lateral apposition with decalcified, perforated, moist, bone plates, as this procedure requires less time and accomplishes the desired result with a greater degree of safety than circular enterorrhaphy.

23. Flushing of the abdominal cavity is to be reserved for cases in which the peritoneal cavity has become contaminated by escape of the contents of the stomach or intestines.

24. Drainage becomes necessary in cases in which the peritoneal cavity has become infected, also in injuries of the liver, and in wounds of the spleen, kidney or pancreas not treated by partial or complete extirpation of the injured organ.

25. The adoption of adequate provisions for the prompt, aggressive treatment of perforating gunshot wounds of the abdomen in hospital tents in the rear of the line of battle, should receive the most serious consideration of military authorities, and military surgeons who will have charge of the wounded in the wars of the future.

26. The necessary diagnostic skill, and requisite manual dexterity in the operative treatment of gunshot wounds of the stomach and intestines, can be acquired only by experiments on the lower animals.

MEDICAL PROGRESS.

DISINFECTING POWER OF PEROXIDE OF HYDROGEN (H_2O_2).—DR. ALTEHOFER of Rostock, gives us, in the *Cent. f. Bakteriologie und Parasitenkunde*, a careful study of the disinfecting power of this substance, for which he claims the especial merit that it does not alter the appearance, taste or smell of water to which it has been added.

The first experiments were made with spring water, the second with hydrant water and a third with river water. The first contained 560, the second 180, and the third 1800 germs in each cubic centimetre. To these several waters were added H_2O_2 in the proportion of 1:5000 and 1:10000, and after an exposure of 24 hours inoculations of gelatine and agar-agar were made. In each case abundant colonies developed, but those from the weaker solution were in greater number and more vigorous.

A second series was made upon hydrant water to which sewage had been added in the proportion of two per cent. and one-half per cent. The solutions were not sterilized even when H_2O_2 was added in the proportion of 1:2500.

Observations were made upon solutions containing H_2O_2 in the proportion of 1:1000. Three samples of potable water were used containing respectively, as was ascertained by cultivation, 160, 600, and 6,000 germs per cubic centimetre. The results in these three cases were, at the end of the seventh day, for the first sample three colonies, the second two, and the third ten. While this shows that the peroxide, in the proportion of 1:1000, is not sufficiently powerful to destroy all the ordinary germs of drinking water, it will destroy the greater number. Solutions of this strength impart a slight metallic taste to water, but this disappears shortly after it has been added. To 100 cubic centimetres of sterilized water one-half ccm. of sewage was added and one ccm. of H_2O_2 . This mixture was found to be absolutely sterile at the end of twenty-four hours.

Experiments made with the typhoid and cholera bacillus showed that they were completely destroyed when H_2O_2 was present in the proportion of 1:1000.

The author recommends the disinfection of drinking water by this means in times of epidemics not only from its efficiency and cheapness, but also because the potability of the water is not altered.

THE GRIPPE CONSIDERED FROM A SURGICAL STANDPOINT.—The recent epidemic of la grippe has called into requisition the services of the physician rather than of the surgeon, but an article by PROF. VERNEUIL, published recently in the *Bulletin de l'Académie de Médecine*, shows that the disease presents many points of surgical interest.

M. Verneuil points out that in most of the surgical affections caused by the grippe, the main pathological feature is suppuration. Thus he observed suppurative inflammations of the eye, ear, joints, purulent pleurisy and pericarditis, the formation of superficial or deep abscesses of the skin and glands, and collections of pus in the antrum of Highmore and frontal sinus. These conditions were treated by appropriate surgical measures, but it was found that the prognosis was less favorable than under ordinary circumstances. This is not surprising, since the grippe, like other acute infectious diseases, causes marked depreciation of the patient's general health and therefore adds materially to the dangers of any surgical operation that may have to be undertaken. Aside from this, it was observed that when patients who were in the stage of recovery from an operation were attacked by the disease, the complication gave rise sometimes to serious consequences. M. Verneuil therefore lays down the rule that excepting the conditions above mentioned, where urgent surgical interference may be indicated, it is better to postpone all surgical measures until the patient has recovered from the grippe. Owing to the slow and tedious convalescence which characterized the disease, it may not be possible to delay the operation until recovery is assured, and in this case the best that can be done is to improve the patient's general condition as much as possible by appropriate medication.

According to the observations of Drs. BERGER and PEYRAT, surgical diseases ran the same course during the prevalence of the grippe as under ordinary circumstances. On the other hand, Dr. WALTHER, of the Hospital de la Charité, states that patients who developed the grippe shortly after operations in which the wound was not immediately closed, as in the treatment of cold abscesses, exhibited a remarkable slowness of the healing process. Cicatrization was arrested to a certain extent, and was not re-established until several days after the complete cessation of the acute febrile symptoms. In the case of wounds sutured without drainage, healing was not interfered with, but usually two or three days after operation a sudden rise of temperature was observed. The cause of this fever could not be demonstrated, since on removal of the dressings the wound appeared perfectly healthy.

Dr. DEMONS, of Bordeaux, mentions quite a number of surgical complications of the grippe which have come under his observation. Otitis, complicated by suppuration in the middle ear or mastoid cells, was met with in several instances. Severe inflammation of the eye occurred in some cases, while in still others an orchitis was suddenly developed without a previous history of gonorrhœa or contusion of the testicle. Fortunately, however, this disappeared as rapidly as it had appeared, without going on to suppuration.

There was also a formation of abscesses in the axilla, in the iliac region, and upon the leg, although none of the ordinary causes of suppuration could be found to exist. M. Demons states that all wounds in the wards of the hospital were slow in healing, and in many instances suppurated profusely. In his opinion, during an epidemic of the gripe it is necessary to abstain from all operative procedures, but especially those involving the buccal, nasal, pharyngeal and respiratory tracts, which are especially apt to be attacked by the disease.

Judging from these observations, the prognosis of operations performed during the gripe is worthy of careful consideration, and, if possible, all surgical measures should be postponed until the patient has recovered from the debilitating effects of the disease.—*International Journal of Surgery*.

CLOSTRIDIAL NEPHRITIS—A NEW FORM OF BRIGHT'S DISEASE.—DR. F. V. HOPKINS, of San Francisco, contributes an original, and apparently carefully carried out, bacteriological research to the *Pacific Medical Journal*. It is based upon the observation of a case of chronic nephritis, due, as he believes, to a peculiar microorganism which he terms "*Clostridium renale*." The description of the germ is as follows:

Circular cocci, 1.27μ in diameter; rods, with rounded ends averaging $.6 \mu$ in thickness by 3μ in length, sometimes enlarging characteristically to bear a sporangium, oval in form, and measuring $1.27 \times 2.5 \mu$. Spores circular, $.42 \mu$ in diameter. Filaments of indeterminate length, sometimes $.6 \mu$ thick throughout their whole extent, at others, 1.7μ at one end and tapering at the other into branches, whose ends separate by fission into the usual round-ended rods $.6 \mu$ thick by 3μ long. Non-motile, pathogenic, infests the blood and is carried by it to the capillaries of the principal organs, which it obstructs.

This organism produces a chronic affection of the kidneys and other organs of the body, characterized by nervousness, sleeplessness, flatulent dyspepsia, albuminuria, dropsy, dyspnoea, and heart-failure. The occurrence of the germs in the urine, free and in casts, is its pathognomonic symptom.

The particular case in question, upon which the description is based, was that of a woman who suffered from nervous depression, dyspepsia, insomnia, and cardiac weakness. Her urine contained various peculiar forms of albumen. Delafield gives tests by which six different varieties of albumen are distinguished. Dr. Hopkins' patient passed still other varieties than these. We are not told the specific gravity of the urine, its daily amount, or that of the albumen, and in this and some other respects there seems to be a lack of careful clinical observation. Casts were found, however, which were composed entirely of bacte-

ria, occurring in the form of rods with rounded ends. These bacteria were cultivated under proper precautions, and inoculations were made in rabbits with the result, invariably, of causing albuminuria, dropsy, and death, with the bacteria in the kidneys and other tissues. The patient died, but no autopsy could be made.

Dr. Hopkins' claim to have discovered a new and peculiar form of nephritis cannot be said to be absolutely established, but he has done a service in calling attention to the importance of the bacteriological study of renal casts. The similar studies in bacteriological nephritis which have been made by others are given by the author, thus:

Babes, in Cornil et Babes' "*Bacteriologie*," p. 373, Figs. 197, 198, has described the "*Bacille de la nephrite bacterieuse*." "Cylindrical rods, with rounded ends 0.8μ to 1μ thick, and of very variable length, sometimes 1.6μ to 2μ and sometimes 20 to 50 μ , and sometimes curved. Habitat, in the urine and renal tissues of patients with diseased kidneys."

In 1880, Dr. Ballard reported a case of meat-poisoning that occurred at Welbeck, Nottinghamshire, England. Four died out of seventy-two that were affected. Bacilli were found plugging the capillaries of the Malpighian bodies in the kidneys, though the symptoms were choleraic. The tube-casts were of the hyaline variety (Klein, "*Microorganisms and Disease*," pp. 122-125).

The bacilli of swine-plague also attack the Malpighian corpuscles, but here the bacilli occupy the capsule, the capillaries being plugged with hyaline matter (*Ibid.*, p. 133).

Again, the bacillus anthracis may completely plug the capillaries of the glomeruli and of the renal cortex (*Ibid.*, Fig. 87, p. 160).

Bacillus tuberculosis also can obstruct the blood-vessels of the kidney (*Ibid.*, Fig. 92, p. 171).

The fungi *Aspergillus flavescens* and *A. fumigatus*, when injected into the peritoneum of rabbits, proved fatal by forming foci in the kidneys and other organs (*Ibid.*, p. 200; Lichtheim, in *Berlin Klin. Woch.*, 9 and 10, 1882).

Letzerich describes twenty-five cases of an acute dropsy of young persons, which he calls "*nephritis bacillosa interstitialis primaria*." This disease lasts from two to six weeks, and is due to bacilli which swarm in the urine. Twelve rabbits inoculated with pure cultures of these bacilli developed ascites in about fourteen days. The bacilli occurred "at the junction between the pyramidal and cortical portions of the kidneys" (*Zeitschrift für Klinische Medizin*, 1887).

Perhaps the criticism which may be more effectively made against Dr. Hopkins' claim to have discovered a new form of nephritis is that his case was one of general microbic infection, and that the kidneys were not the primary or chief centres of the morbid action.—*Medical Record*.

ON PSYCHOSES AFTER INFLUENZA.—KRÄPELIN (*Deutsche med. Wochenschrift*, 1890, No. 11) has observed a development of mental disorder after the departure of influenza in eleven instances. Among these were cases of simple psychical depression, of melancholia with delusions, acute states of exhaustion resembling the delirium of collapse, typical mania, and delirium tremens. The outburst of the psychical attacks regularly supervened at once upon the expiration of the bodily morbid phenomena; so also no elevation of temperature was ever noticed. The especially active causes of these psychoses was, therefore, apparently to be sought rather in the general enfeeblement of the organism than in the particular nature of the intoxication or toxæmia. The prognosis of these psychoses is very favorable; the treatment must be a generally strengthening one.

PLUMBISM AND ALCOHOLISM.—At a recent meeting of the Academy of Sciences, Paris, M. CHARCOT read a note on some experiments in plumbism carried out by MM. Combermate and François. They caused from one to five centigrams of carbonate of lead to be consumed daily by animals. At the end of about a month the nervous symptoms of saturnine poisoning made their appearance—such as epileptic fits, delirium, etc.—just as they are observed in man. This was, of course, not new; but the interesting point was that in certain of the animals experimented upon the administration of large doses of alcohol was found to hasten in a remarkable manner the advent of the nervous symptoms. The same thing was noticed when others of the animals were subjected to any abrupt emotional shock, such as fear. These facts were worthy of note, for in man a similar precocity of the nervous phenomena of plumbism was observed whenever those already suffering from lead poisoning were subjected to a moral shock or became addicted to alcohol.—*Lancet*.

OSTEOGENESIS.—On Tuesday, August 5, PROFESSOR OLLIER, of Lyons, read a paper on this subject at Berlin. He began by considering the growth of bone in general, and gave a full account of his researches into these questions, in which by a series of experiments performed on animals, as well as in consequence of the numerous operations which he had performed on man, he had been led to the following conclusions: New bone could in reality be formed from the periosteum alone, and only under certain well-known conditions. It was perfectly hopeless to expect any complete and permanent growth of bone to take place unless the periosteum surrounded it. It was, indeed, true that if the parts were aseptic for a time, the new bone, or implanted bone, as the case might be, seemed to grow,

but this was only for a time. Within six months necrosis took place, and the dead bone, if loose, was thrown off, or might remain encysted in some instances, and, if it did no harm, was certainly of no advantage to its possessor. This was a fact which had been known for many years, and there was, he believed, notwithstanding what had been said to the contrary, no exception to it. If a more minute examination were made of the implanted bone, it would be seen that the changes which took place in it were as follows: It was penetrated by blood-vessels from the surrounding bones and tissues, but these vessels played no part in its nutrition, but served only to further its absorption. Perhaps no more striking evidence of the value of the periosteum could be given than the following: On one of his patients, a young woman, he had operated three times, resecting her elbow-joint on each occasion, but the periosteum had been retained, and on each occasion she had made an excellent recovery. Practically there were three kinds of plans which might be employed, which might be styled: 1, autoplasmic, in which the same bone was used to repair some deficiency in itself, and the bone was only partially severed from its connections—as, for example, where a piece of bone was turned down from the forehead to make a new nose; 2, the second of these plans was well described as homoplasmic—that is, when the graft is taken from the same individual, but not from the same bone; 3, the third, or heteroplasmic, plan is applied to those cases in which a bone of some other individual or animal is made use of. The first and second plans were all but useless, and the third quite so—that is to say, the implanted bone could not ever grow. With regard to the question of excisions, it was, of course, a case for either movement or ankylosis. He had nothing to say, except that in the lower limb we must always have ankylosis, and in the upper movement, though an exception might, perhaps, be made in the case of the wrist, where a fixed or partially fixed joint would be more useful to the patient than a movable one.—*Brit. Med. Journal*.

SALT IN MILK FOR CHILDREN.—DR. A. JACOB (Arch. of Ped.) says that the addition of sodium chloride prevents the solid coagulation of milk by either rennet or gastric juice. The cow's milk ought never to be given without table salt, and the latter ought to be added to a woman's milk when it behaves like cow's milk in regard to solid curdling and consequent indigestibility. Habitual constipation of children is influenced beneficially, since not only is the food made more digestible, but the alimentary secretions, both serous and glandular, are made more effective by its presence.

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SATURDAY, SEPTEMBER 13, 1890.

EMPHYEMA.

The impunity with which the peritoneum is subjected to operative interference depends not so much upon antiseptic methods as upon the germicidal action of the peritoneum itself. This action has been shown by RINNE¹ to be sufficient to remove, every few days, a few cubic centimetres of injected pus. The experience of operators also leads them to place the greatest reliance on the uninjured peritoneum to remove small amounts of infective material. Although the investigations of KNECHT² show that the healthy pleuræ of animals absorb with ease small amounts of pure cultures of pyogenic bacteria, the germicidal action of these surfaces is noticeably less than that of the peritoneum. The pericardium and the serous surfaces of the meninges offer almost no resistance at all to infection. This phenomenon the writer holds is due to an immunity acquired by the peritoneum through its proximity to infective material within the intestinal canal. The danger of the pleural cavities to infection is less, and therefore less resistance has been evolved, while the opportunity of the remaining serous cavities to infection is so small that their resistance is at a minimum.

Next to the peritoneal, then, the pleural cavities offer the greatest opportunity for, and the greatest hope in operative treatment. The history of empyema is one full of mournful disasters. Its diagnosis has often been delayed or mistaken. Usually secondary, it has been confounded with

every condition which it follows, and the unhappy patient has been allowed to die and be buried with a mistaken diagnosis. Phthisis (pulmonary tuberculosis) has not only had cases added to its mortality, but records some of its most remarkable recoveries through these errors, and mania and insanity have suddenly been cured by the evacuation of a suppurating pleura.

During the past half year, an unprecedented number of cases of suppurative pleuritis have been observed. In Cook County Hospital only two cases of empyema were treated in 1889, while during the first six months of 1890 fifteen cases were admitted with this diagnosis. Almost every practitioner could report a similar condition of things in his own private practice, and a careful examination will show that the influenza was the primary disease in the great majority of cases.

The origin of these empyemas may be set down something in this manner: General infection of the blood with influenza and consequent saturation of its germicidal quality; invasion of portions of the lung with pneumonia-producing parasites, and consequent interruption of the lymph-currents from the pulmonary pleura over the affected area, resulting in serous pleuritic effusion; invasion of the lymph spaces in the pneumonic area by pus-producing bacteria which advance from the larger to the smaller bronchioles to the lymphatics, and then are carried in the lymph in its abnormal course into the pleural cavity. Here the bacteria multiply in the effused serum until the pleural surfaces are so modified by the products of bacterial growth that absorption is arrested and these surfaces become one continuous pyogenic membrane.

Suppurative disease in the pleuræ is of the same destructive and progressive nature which is so well recognized elsewhere, and it should be attended with the same prompt and radical treatment. The peculiar contractile power of the lung which causes it to collapse as soon as the atmospheric pressure is admitted through a defect in the thoracic wall, has led to the surgical neglect of this region. However, the indications in cases of empyema are well defined: evacuation of the pus, arrest of the suppuration, and restoration of the function of the parts.

The early evacuation of the pus with the aspirator accomplishes the first and last indication temporarily; and, when continuous aspiration

¹Laugenbeck's Arch. f. Klin. Chir., 1889.
²Inaugural Dissertation, Greifswalde, 1889.

after the manner of BULAN is practiced, it meets all the indications better than any method yet proposed. But the patient requires constant trained attendants, and his intelligent and patient co-operation is necessary to success. The method, moreover, is inapplicable to cases of fibrinous or fibrino-purulent pleurisy, and it is liable to serious interruptions and accidents when successfully initiated. Nevertheless it is the only method that can be thought of in bilateral empyema, and in unilateral empyema with loss of function of the opposite lung from pneumonia or other cause. Even if it be followed by incision of the thoracic wall and open drainage, it may limit the cavity so that the lung will suffer trifling collapse.

For cases removed from the possibility of constant trained assistants, the excision of a portion of rib and free drainage through the defect, is much to be preferred and it can be relied upon in most cases. Its application is so well understood that further mention is unnecessary. It is the only method which can be practiced in tubercular empyemas and in cases accompanied by permanent collapse or extensive gangrene of the lung, and in pneumo-pyo-thorax from perforation into a bronchus. It may frequently be necessary to supplement it in the worst of these cases with ESTLANDER'S operation.

Simple incision between the ribs can not be recommended as a safe procedure. It has been tried, with and without drainage tubes, for years, but with the most disastrous results. While it gives temporary relief, it offers, except in children, small hope of permanent recovery. Nevertheless, WM. E. QUINE has lately so modified this operation that it has in his hands given the greatest hope of usefulness. The incision is made into the center of the empyemic cavity at upper border of a rib. The pus is washed out once or twice daily with the most scrupulous antiseptic precautions. The thorough disinfection of the cavity is all the time kept in mind. When, after a week or ten days, more or less, the discharge becomes serous, the antiseptic irrigations are redoubled in amount and care for a few days, and then, after one grand attack on any remaining infection, the tube is removed and the incision stopped with a mass of iodoform, and the thoracic wound covered with an occlusive antiseptic dressing for two weeks. Under this treatment he has repeatedly had large tympanic

thoracic cavities close in ten days, all the air being absorbed as well as any serous or purulent discharge, and what infective material the antiseptics have spared. The writer, on the suggestion of Prof. Quine, has practiced this method on a boy seven years old with the most happy results. A cavity holding at least three ounces after daily antiseptic irrigation for two weeks, was permanently closed and the boy has remained well for three months. The writer believes that in proper cases and in proper hands this will be found a most satisfactory treatment. It must be instituted early. It must be conscientiously carried out until an approximately aseptic condition of the cavity is secured, or, better, until the absorptive power of the pleural surfaces is restored. Then the incision must be so closed that all ingress of air is prevented by the coaptation of the lips of the incision while the air within the cavity is absorbed, or forced out of the incision by coughing.

THE CRIME OF OVER-STATEMENT.

In the candid study of reported cases, there is apparent to the critical mind, an element of incredibility, which will not down at the bidding. We are ready to admit that this is not a constant factor, but merely that with all the hedging that it is quite frequent enough to deserve criticism. There is somehow an over-writing, a curious blending of the probable with a suggestive caution lest the tale be too well told. These are the arts of the shrewd writer, well up in the tricks of his craft. Parallel instances do not and are not expected to yield like results in other hands. Failure is to be attributed to lack of skill, knowledge or judgment.

Much may be allowed for the enthusiasm of the advocate of a new mode or principle, but there is altogether too much glossing and too much of the spirit of self-complacency to yield results of permanent value. This strife for immediate recognition, and this pushing to the front at all hazards, although for a season successful to the individual, only resolve themselves into examples of disaster to science at large. Men shake their heads and take refuge in a general disbelief, which stifles progress.

Now we hold that much more is to be learned from confessed errors of logic and mistakes in

diagnosis, than by any pandering to a personal vanity or assumption of infallibility. An unsuccessful issue, incapable of any avoidance in reality benefits more, when, conscientiously stated, than the most brilliant jumping at conclusions. We desire to give to this expression the utmost force, especially if the prevarication be deliberate. In all contributions to the medical press, the ideas involved may be worthy of perpetuation; then more is the pity if they be over-stated. What harm, therefore, if the foresight and ingenuity of other investigators bring to the task of unravelment a fresher mentality and more unprejudiced views. Any truth may be spoiled by too much drapery. Facts, in this our age, where BACON holds such a sway, can well afford to stand without propping. Facts, too, none of us need be told, are the known quantities in our mathematics, no less than in other departments of learning. HIPPOCRATES as an observer of the phenomena of disease will stand the test of ages yet to come; and DARWIN as a classifier of facts, will stimulate thought as long as the language in which he wrote is known. Why such enthronement? Why, because, in both the cardinal virtue was honesty.

In this, our writing, we are hinting at no delinquents in particular, but are disposed to denounce tendencies, customs and motives. Offenders are legion, and worst of all unconscious of their faults—they only know their neighbors, whom they would willingly punish. We admit that the temptations for a cheap acquirement of fame are various, that patience in classification is ignored, and that much latitude is given to fiction; but there can be no excuse for misleading the trusting by claims that are extravagant. We also allow that testimony is fallible, but cannot yield the point that falsehood, either deliberate or suggestive, can ever be utilized for any good. Let us have clear, succinct histories devoid of attempts at embellishment, and those artifices of concealment which mar rather than strengthen; let us not depend upon any one instrument of precision, nor let our vista be limited by any one field. When we become convinced of the more truthful methods of procedure, we shall come to comprehend broader laws, and to anticipate some of the grander discoveries, which may have been intended for reservation to posterity. Our moral is obvious, less self-appreciation but more labor for the general good.

GOVERNMENTAL INVESTIGATION REGARDING SPIRITUOUS LIQUORS.

An official enquiry by PROF. LYON PLAYFAIR'S committee on British and foreign spirits and their adulteration, at the laboratory of the Inland Revenue Department, has been made unusually interesting from the fact that one of the members, MR. HEALY, obtained specimens, from the House of Commons refreshment bar, of the Scotch and Irish whisky dealt out to the honorable members. The report of the analysis has not been published. But there has been published the evidence of DR. BELL, principal chemist at the laboratory above mentioned, regarding the brandy obtainable at the drinking places in London, to the effect that only four out of five were genuine, the other samples consisting of purified spirit flavored and colored. The mellowing of whisky, according to Dr. Bell, is a very uncertain element. He has seen a three-year old specimen which had lost none of its fusel oil, although generally speaking the time required in the mellowing process depends mainly on the amount of that oil present when the liquor is fresh from the still. Hence it is, as might be expected, that a great difference can be detected between the products of different distilleries. The chemical changes, which attend the mellowing of whisky, are not fully understood, although they are known to consist in part in the breaking up of fusel oil into aromatic ethers, but the same changes will certainly not always occur in different samples kept under conditions closely analogous. Dr. Bell states that he obtained fifty samples from the lowest public-houses in various British towns, and his analysis resulted in showing that the spirits were satisfactory in regard to purity, and that the injurious adulteration of alcoholic beverages is far less frequent than is commonly reported.

ELEMENT OF CONSENT IN SURGICAL OPERATIONS.

Apropos of a recent editorial in the *Medical Record* on "The Responsibility of the Physician for Experiments upon Patients, even with the latter's Consent," we are reminded of the exhaustive discussion upon "The Medico-Legal Relations of Abdominal Surgery" held in the Section on Jurisprudence at the last meeting of the American Medical Association. In that dis-

cussion, the necessity of obtaining the consent of the patient and friends, before proceeding to open the abdomen, was especially insisted upon by several speakers, and from this the discussion branched to the element of consent generally in surgical operations. The view most readily accepted in that meeting was that more than simple consent was required in surgical operations—while that was essential; the operation itself must be in the line of approved surgical procedure. A case was quoted in which a young man had his testicles removed because of amorous proclivities. He subsequently married and sued the physician for malpractice, notwithstanding the fact that the operation was undertaken with his full consent, indeed it was solicited. The case was settled out of court by the payment of a round sum on the part of the physician.

Responsibility in these cases is a complicated legal question. But we incline to the view that the mere element of consent is not sufficient to absolve the medical man from responsibility, unless the operation is within the recognized limits of medical or surgical procedure. It will not protect the physician in performing bizarre operations, or in reckless experimentation.

While we sympathize with the physician, mentioned by the *Record*, who was mulcted in small damages, we are not unmindful of the painful abscesses in the paralyzed limbs of the too credulous patient.

EDITORIAL NOTES.

PROF. SILAS H. DOUGLAS, M.D.—Dr. Douglas, says the *American Lancet*, died at his home in Ann Arbor, August 26, aged 74. He was for thirty-three years Professor of Chemistry in Michigan University. His genius organized the chemical laboratories of the University. For many years these had no equal in the United States. Much of the special value of the medical course was due to the exceptional advantages of these laboratories. Following Dr. Douglas Houghton in his occupancy of the Chair of Chemistry, he had the fullest opportunity to carry out his plans of teaching. He will doubtless be long remembered by his connection with the famous Douglas-Rose controversy, that kept at a white heat scientific, social, educational, and political interests of

the dominant power in the State. He was an exceptionally good business man for a doctor and a professor, and so was enabled to leave a large estate.

DEATH FROM POST-MORTEM ACCIDENT.—Dr. John Henry Love, formerly Health Officer at Wolverhampton, England, lost his life in consequence of an unusual accident in the post-mortem room. In the course of an autopsy he was engaged in opening the calvarium, when the hammer he was using slipped from the head of the chisel, and he received a sharp blow on the thumb of his left hand. The wound thus caused was immediately sucked and other treatment employed, but not sufficiently well to prevent septic infection, with cerebral symptoms, which resulted fatally three months after the accident. Perhaps the most important point of information to our readers, in this narration, may be in the fact that the lethal hammer-blow was given by one of those instruments that have one end of the head sharp and the other flat, and that in delivering the stroke the operator unfortunately had the sharp end towards the head of the chisel. Not unnaturally the hammer slipped, with the distressful results above described; all of which goes to show how life may hinge on a trifle of want of care and attention. In the post-mortem room, especially, these trifles must be rated as extra-hazardous.

THE MEDICAL EDUCATION OF WOMEN IN RUSSIA.—The reopening of the Woman's College of Medicine at St. Petersburg has been ordered by the Government. A building belonging to the municipality has been set apart for its temporary occupancy, and an annual grant amounting to about \$15,000 will be contributed by the city towards its support. The hospitals of the city will be accessible to the female students. The donations of private citizens will be relied upon, in considerable measure, to establish the college on a substantial basis. The college has already graduated not far from 700 lady physicians. The decision of the municipality to open the institution anew was brought about in consequence of a favorable report by Dr. Archangelsky, who has observed the good results of the work done by eleven female medical inspectors, employed by the city, to have oversight of the public schools and the *pauvres faubourgs* of St. Petersburg. Some of

these Russian ladies have found their way to Smyrna and other cities of the Orient, but far the greater number have remained in their own country, which suffers under a dearth of practitioners of medicine.

DR. FRIEDRICH ARNOLD, the eminent pathologist, died in Heidelberg on the 7th ult. No German professor is better known in America, nor one who has taught personally so many of the younger generation of medical men.

CHOLERA IN SPAIN; MALTREATMENT OF THE GOVERNMENTAL PHYSICIANS.—The strange behavior of the Spanish peasantry towards the medical men, who have been sent among them to save their lives, is like a page out of some mediæval chronicle. If the facts have been truly related to us by the cable despatches, not less than three cholera physicians have been killed by the mob, and many have been violently assaulted without cause. The health physicians have, in some places, refused to go on with their work unless protected by the military. Wherever they have gone, in the country districts, they have encountered the same wild panic-like antagonism, although their errand is plainly declared by them to be to save the lives of other people, at the risk and exposure of their own.

THE REPUTED CASE OF CHOLERA IN LONDON.—Great excitement prevailed in London recently following the announcement that a typical case of cholera had occurred in the person of a sailor landed at the Victoria Docks. On admission at the Poplar Hospital he was suffering marked collapse, cyanosis, cramps and violent vomiting. While these clinical symptoms point to Asiatic cholera, still the fact that there were no other cases during the voyage, and that no new cases are being developed, leads to the conclusion of his medical attendants, who have given the case every attention possible, that it is one of cholera nostras or cholera morbus, and not Asiatic cholera.

THE AUSTIN DISTRICT MEDICAL SOCIETY will hold its twelfth quarterly meeting at Austin, Texas, on Thursday, Sept. 25, 1890. A full programme of papers is published, and an interesting meeting of Texas physicians is assured.

THIRTY-TWO physicians of Bordeaux have volunteered for service at the frontier in preventing the spread of cholera.

CHOLERA.—The advices with reference to this disease during the current week have been favorable. Though prevalent in the provinces of Spain, the adjacent territories of France and Portugal are still exempt. It is less fatal in the localities previously infected, and in its progress westward it has been nearly at a stand. The report of a case in London proves to be ill-founded, and the advance to Western Europe by way of the Black Sea seems less and less probable. The heat of summer past, we may reasonably anticipate that for winter, at least, its general westward progress will be controlled.

PERSONAL UNCLEANLINESS AS A FACTOR IN THE CAUSATION OF CHOLERA.—In the *Gazette Médicale d'Orient* Dr. Gabuzzi cites Rochefontaine's experiments going to show that the microphyte of cholera is sterile within the patient's organism, and that, in order to be rendered capable of conveying the disease, it must find a nutritive soil on being cast off from the system. The urine, he thinks, often constitutes a medium in which it may attain pathogenic powers, and uncleanness, which favors the mixture of urine with the bacillus, may therefore be regarded as a predisposing cause of cholera.

CHOLERA IN JAPAN.—This disease has become prevalent in various parts of Japan, and it is quite possible that it may reach this continent by the western route rather than by the way of the Atlantic ports. Cases are reported in Tokio, and in Yokohama, the great center of commerce, a number of cases are reported.

PARIS is now receiving milk directly from the provinces, in sealed glass jars. This not only prevents contamination, but also fraud on the part of the retail dealer.

PROF. V. NUSSBAUM, of Munich, has, through ill health, been compelled to resign the position of director and professor at the University surgical clinic. Prof. Augerer has been intrusted with its provisional conduct.

SINCE 1866, 202 women have received diplomas in France, of whom 35 were doctors of medicine, 67 bachelors of letters, 69 bachelors of science, 13 licentiates, and 2 pharmacists.

IN the rue Fessart, Paris, there has been established a house of refuge for women, modelled somewhat after the plan of industrial homes.

maintained was 32 minutes; and the average amount of ether used during this time was $7\frac{1}{2}$ ounces. In twenty-one surgical cases occurring this spring in the clinical service of Professor J. William White, of the University of Pennsylvania, the average time for the production of complete anaesthesia with ether, used through Allis's inhaler, was $7\frac{3}{4}$ minutes. The results arrived at in these two clinics are so close that 8 minutes must be considered as the average time required for full etherization by this apparatus.

In discussing the treatment of the accidents of anaesthesia, the results obtained at the bedside naturally press forward for careful consideration; but in going over the subject from this point of view, I have found so little that was novel, and so little that was satisfactory to myself, that I shall not occupy the time of this Congress with any conclusions drawn from reported cases, or personal experience in chloroform accidents. I do not think myself that the problem can be solved by any such study of cases. Death is so near and so terrible, time so absolute, moments so important, that no surgeon would be willing or justified in waiting for the effect of any one remedy; and when a man is dosed with alcohol, nitrite of amyl, hypodermic injections of ether, digitalis, atropine, and other powerful agents; faradised, slapped, douched, stood on his head, subjected to chest movements for artificial respiration, and various other measures too numerous to mention; who can tell, if by chance he recover, why he has done so? or who can point out, if by chance he die, what is the remedy whose omission or commission has led to the fatal result?

The problem is a very complex one, not to be worked out amidst the excitement and responsibilities of the amphitheatre. Only in the physiological laboratory can its various elements be separated and studied each by itself, without regard to the individual life which is at stake.

In the physiological laboratory two distinct paths open, each promising to lead to some positive knowledge. We may, on one hand, enter upon the study of the minimum fatal dose of the anaesthetic, and of the results by consentaneous or subsequent administration of its supposed physiological antagonist; or we may investigate the effect of remedies upon functions that are failing under the influences of the anaesthetic.

The objections to the first of these methods have been, in the present instance, overwhelming. The accidents seem to be independent of the amount of anaesthetic inhaled; and such a method of investigation would have required far more time than was available after I had had the honor of being asked to address this body. Death is produced by chloroform and ether through paralysis of the respiration and the heart, and the method of experimental study which I have employed consisted in a study of the action of power-

ful agents upon these functions when oppressed by chloroform. I have selected chloroform chiefly because it is the more powerful agent of the two anaesthetics, and the more certain in its lethal results.

The experiments have all been made upon dogs, by one plan. The carotid artery and also the trachea, having been connected with a recording drum, so that the movements of the circulation and the respiration could be consecutively recorded, the animal was anaesthetised, and when the blood pressure had fallen almost to zero, and the respiration had ceased, or nearly ceased, as the case might be, the remedy to be tried was injected into the jugular vein, through a canula which had been previously inserted.

The more important remedies which have been used by clinicians for the averting of threatened death during anaesthesia are ether, alcohol, ammonia, nitrite of amyl, digitalis, atropine, and caffeine, alterations of position, and artificial respiration.

Although, at least in America, hypodermic injections of ether have been frequently employed even in ether accidents, such use is so absolutely absurd that it does not seem to me to require any experimental evidence as to its futility. Ether in the blood acts as ether, whether it finds entrance through the lungs, through the rectum, or through the cellular tissue; and the man who would inject ether hypodermically into a patient who is dying from ether, should, to be logical, also saturate a sponge with the ether and crowd it upon his unfortunate victim.

Instead of simply stating the results obtained in my experiments, I have thought it would be more interesting to show reproductions from some of my tracings. The first drug that I shall report upon is caffeine. I have injected it during the cardiac failure produced by chloroform, in doses varying from 3 to $7\frac{1}{2}$ grs., and have never been able to perceive any distinct alteration in the arterial pressure, and no consistent distinct change of the pulse either in number or force. So far as the experiments go, they certainly indicate that the drug has no influence upon the heart that is being overpowered by chloroform. I may also state here, that it is not possible in any of my tracings to make out any influence exerted by caffeine upon the respiration.

With atropine, I have made a few experiments, the results being almost as negative as with caffeine. Ten cubic centimetres of a 2 per cent. solution of the atropine injected into the jugular vein of a chloroformed animal, altered the rate of the pulse beat, but had no apparent effect or influence upon the arterial pressure, or upon the respiration, and in no wise prevented final cardiac arrest.

Of all drugs, that which I think is most relied upon by clinicians as a cardiac stimulant in anaes-

thetia, as in other cases of heart failure, is alcohol. The chemical and physiological relations of alcohol to ether and chloroform are, however, so close, that many years ago I became very doubtful of the value of this drug as a stimulant to a heart depressed by anæsthesia.

These doubts continually grew stronger from what I saw and read as to the effects of the administration of alcohol during anæsthesia, and were finally changed into conviction by the experiments of R. Dubois,¹ who found that in the animal to which alcohol had been freely given, much less chloroform is required than in the normal animal, to anæsthetize or to kill; or, in other words, that alcohol intensifies the influence of chloroform and lessens the fatal dose.

In my own experiments with alcohol an 80 per cent. fluid was used, diluted with water. The amount injected into the jugular vein varied in the different experiments from 5 to 20 cubic centimetres, and in no case have I been able to detect any increase in the size of the pulse, or in the arterial pressure, produced by alcohol, when the heart was failing during advanced chloroform anæsthesia. On the other hand, on several occasions the larger amounts of alcohol apparently greatly increased the rapidity of the fall of the arterial pressure, and aided materially in extinguishing the pulse rate.

The effects of ammonia upon the failing heart of chloroform anæsthesia have been in my experiments uncertain; sometimes distinct, although very fugacious, and sometimes imperceptible. Twenty cubic centimetres of a 10 per cent. solution of aqua ammoniæ fortior (United States Pharmacopœia), in some instances produced an immediate rise in the arterial pressure, and even fugaciously registered itself in the respiratory rate, but perhaps more frequently it failed in its influence.

The influence of injections of digitalis has been in a number of experiments very pronounced in producing a persistent gradual rise of the arterial pressure, with an increase in the size of the individual pulse rate. In several instances death was apparently averted by its injection, and I saw in one or two cases, where large amounts of the digitalis had been employed, sudden systolic cardiac arrest, indicating that digitalis, if in sufficient amount, is able to victoriously assert itself in opposition to chloroform. Moreover, when I have given chloroform to dogs whose hearts were already under the influence of digitalis, there has seemed to be a peculiar steadying or sustaining power combating the circulatory depression naturally produced by the anæsthetic, and I believe that in all cases of weak heart in man, a full dose of digitalis before the administration of chloroform would greatly lessen the danger of cardiac collapse.

With the nitrite of amyl four experiments were made; in some of these from 4 to 10 drops of the nitrite of amyl were injected in the jugular vein; in others the nitrite was used by inhalation. No distinct effect upon the arterial pressure was in any instance produced, and usually no alteration in the size of the pulse waves, although sometimes the pulse did appear to be a little fuller.

Of all my experimental results, those which have been reached with strychnine have been the most surprising. The injection of strychnine into the jugular vein usually produced a gradual rise of the arterial pressure, and always caused an extraordinary and rapid increase in the rate and extent of the respiration. Thus I have seen the respiration, which had practically ceased for ten seconds, suddenly, under the influence of an injection of $\frac{1}{16}$ of a gr. of strychnine, become at once very large and full, and reach a rate of 130 a minute.

A series of elaborate experiments made upon the effect of the change of position of the animal on the blood pressure in the carotid and other arteries, has very clearly proved that the body of the animal whose circulation has been paralyzed by chloroform acts in a measure like a tube filled with fluid. Thus, if the feet of the dog were raised vertically above the head, whilst the latter remained upon the table, an immediate rise of pressure occurred, even though the heart had ceased beating entirely; provided that the head of the animal was kept upon a level with the table. If, however, the head of the animal was depressed below the level of the table for a distance equal to, or greater than the length of the body of the animal, a decrease of the arterial pressure occurred at once, although the animal was in a vertical position. The phenomena observed were precisely such as would have been produced if the canula had been inserted into a tube filled with fluid, instead of the carotid artery, and the elevation and depression of this tube had registered itself on the recording drum, in obedience to the ordinary laws of hydrostatics. The phenomena were entirely independent of any beat of the heart, and were readily produced when the animal was dead, provided the death had not occurred too long previously. Sometimes, even a very few minutes after the cessation of the heart beat, it was impossible to produce the changes of pressure on the drum. This I believe to have been due to coagulation of the blood occurring very early after death to a sufficient extent to interfere with the liquid properties of the fluid. In no case was any effect upon the respiration produced by change of position in the animal. In a number of cases, however, when the feet were elevated, the heart, which had entirely ceased beating, recommenced its work, and I have several times seen a pulse entirely disappear when the animal was taken from the vertical to the

¹ Progrès Méd., 1883, xi, 951.

horizontal position. On the other hand, very frequently it was impossible to affect the cardiac action by changing the position of the animal. Nevertheless, the phenomena spoken of occurred too frequently to be a mere outcome of chance, though I several times noted that the heart was usually more affected by alternately elevating and depressing the feet of the animal than by keeping it in a steadily elevated or horizontal position.

When the circulation has practically ceased, under the depressing influence of an anæsthetic, inverting the body must cause the blood which has naturally collected in the enormously relaxed vessels of the abdomen, to flow into the right side of the heart and distend it, and this distension—this increase of pressure—appears at times to have a sufficient momentary influence to stimulate the failing organ.

The theory which has been advocated by some therapeutists—that inversion of the body is of value in the accidents of anæsthesia, because it causes the vital centres of the brain to be supplied with blood—is probably incorrect. The respiration in anæsthesia fails, not through want of blood in the respiratory centres, but because the blood contains a poison which paralyzes these centres.

The most remarkable results which I have reached in bringing about recovery of animals to all ordinary intents and purposes dead, were obtained through the use of artificial respiration. Thus, I have seen an animal, in which no respiratory movements whatever had taken place for two minutes, and in which, during that time, no movements of blood had occurred in the carotid artery, and in which, therefore, the heart had ceased its beat, rapidly and permanently restored by artificial respiration.

At one time in these researches, it appeared as though after any dose of chloroform by inhalation, the animal could be resuscitated by artificial respiration, even though heart and lungs were completely paralyzed by the drug; but finally I did find a case in which artificial respiration failed.

The results of my experiments with the lower animals may be summed up: that nitrite of amyl, caffeine and atropine are of little or no use in chloroform poisoning; that alcohol, when given in small amounts, has no influence, but that when given largely, materially assists in paralyzing the heart and producing fatal results; that ammonia has some little influence upon the heart, but that of all substances tried, digitalis was by far the most powerful in stimulating the failing circulation; indeed, my experimental results indicate that it is the only known drug which is of any real practical value in such cases. Next, or perhaps even before digitalis, strychnine seems to be of value in the accidents of anæsthesia, because, whilst having some influence on the circulation, it affects powerfully the respiration. For many years chloro-

form has been used in practical medicine as the physiological and practical antagonist to strychnine, and it seems rather odd that strychnine should never have been employed as the practical antagonist to chloroform.

The one measure which in practical value far surpassed all others for the restoration of the dying animal was artificial respiration, and I have no doubt that a great majority of the deaths which have occurred in man from anæsthesia might have been avoided by the use of an active artificial respiration. The difficulty with artificial respiration, as it has been hitherto practiced upon man, after the Sylvester or other methods, is its inefficiency; whereas the artificial respiration which I used on animals was very active, indeed, much more efficient than natural breathing in causing circulation of air through the lungs, and therefore in removing excess of the anæsthetic from the residual air of the lungs and from the blood.

The use of what may be called "forced" artificial respiration by the physiologist, so naturally suggested a similar practice in man, that the celebrated John Hunter invented for the purpose an apparatus which consisted of a bellows so constructed that when it was extended one compartment drew in air from the lungs, whilst the other drew air from the atmosphere; and when it was closed the process was reversed, the fresh air being thrown into the lungs, the foul air into the atmosphere. In 1867, Richardson, of London, invented an apparatus more elegant and portable, although identical in principle with that of John Hunter's; but I have not found that either Hunter or Richardson treated by forced artificial respiration an actual case of disease or poisoning. In 1875,² Dr. John Ellis Blake reported a successful case of aconite poisoning, in which life was apparently saved, although there was no pulse for over three hours, by artificial respiration, with the use of oxygen. In this case Marshall Hall's method was at first used, but later, a small rubber tube was connected directly with a copper reservoir of condensed oxygen, the other end of the tube terminating in a small nozzle, which was inserted in one nostril. Four hundred gallons of oxygen were thus used, but how far the force of the compressed gas was employed to dilate the lungs is not very clear; and it is doubtful whether this case should be considered as one of forced respiration. The first physician to use forced respiration in actual human poisoning, with a clear idea of its value and power, so far as my reading goes, was Dr. George E. Fell.³

It is plain that the bellows constructed by John Hunter and by Richardson are unnecessarily complex and faulty in principle. There is no need whatever of drawing the air out of the fully-

² Boston Med. and Surg. Journal, vol. xxi.

³ International Medical Congress, Washington, 1887.

filled lungs. Every physiologist knows that when the muscular system is completely paralyzed by curare or even by death, the chest walls have sufficient elasticity to force air out of the lungs, and all ordinary laboratory apparatus for artificial respiration is based upon this fact. For forced artificial respiration in man, an ordinary bellows of proper size is all that is required for the motive power.

The real difficulty—the point to be especially investigated and studied—is as to the connection between the bellows and the lungs. Hunter and Richardson simply placed a tube in one nostril, closing firmly the other nostril and the mouth of the subject.

Dr. Fell at first used a tracheal tube, the insertion of which, of course, necessitated the performance of tracheotomy. In one case, however, a simple mask covering the mouth and nostrils was a perfect success. I have had no opportunity of trying the apparatus on the living, but have made a series of experiments upon dead bodies, which have demonstrated that usually a face mask is all that is necessary for the performance of artificial respiration. Before using the mask, the tongue should be well drawn forward, and, if necessary, fixed in this position by an ordinary piece of silk suture run through it, which can be held in the hand of the operator. If in any individual case the mask fails, an intubation tube may be introduced into the larynx. I do not believe it will ever be found necessary to perform a tracheotomy.

Dr. Fell's apparatus consists of a pair of foot-bellows by which air is forced into a receiving chamber, which is connected with an apparatus for warming the air, and a valve which can be opened and shut by a movement of the finger. This valve in turn leads to the tracheal tube. When the valve is opened the air rushes through the chamber into the lungs and expands them; the finger is lifted, the valve shuts, the lungs contract; and so the respiration goes on. I have no doubt that this apparatus is efficient in practice, but it is open to the serious objection of being unnecessarily complex and costly.

A much simpler, cheaper, and probably equally efficient apparatus may consist simply of a pair of bellows of proper size, a few feet of india-rubber tubing, a face mask, and two sizes of intubation tubes. There should also be set in the tubing a double tube, with opening similar to that commonly found in the tracheal canula of the physiological laboratory, so that it is in the power of the operator to allow for the escape of any excess of air thrown by the bellows. This whole apparatus can be prepared at a very trifling expense, and it seems hardly necessary to point out its probable value in various narcotic poisonings, and other accidents, in which death is produced by a paralysis of the respiratory centres of

temporary nature. The proper use of it—at least with the face mask—could be taught to persons without special medical skill, so that it not only ought to form a part of the surgeon's outfit, but might be of great service in life-saving stations, about gas works, etc.

In conclusion, I may be allowed to state that if the results and deductions arrived at in this address are, as I believe, correct, the rules for the proper treatment of accidents during anaesthesia can be summed up in a very few words:

Avoid the use of all drugs, except strychnine, digitalis, and ammonia.

Give the tincture of digitalis hypodermically.

Draw out the tongue, and raise up the angle of the jaw, and see that the respiration is not mechanically impeded.

Invert the patient briefly and temporarily.

Use forced artificial respiration promptly, and in protracted cases employ external warmth and stimulation of the surface by the dry electric brush, etc., and, above all, remember that some at least, and probably many, of the deaths which have been set down as due to chloroform and ether have been produced by the alcohol which has been given for the relief of the patient.

DOMESTIC CORRESPONDENCE.

The New York State Examining Board.

To the Editor:—Dr. William Warren Potter—who gives his own name and address so fully that it is unnecessary for me to reciprocate the favor which he does me in that respect—apparently misapprehends both the intention of my criticism and the provisions of the Act which he defends, inasmuch as he confines the principal part of his argument to the function of the State Medical Society in "nominating to the Regents of the University one of the boards of medical examiners to be created," whereas my objection concerned the decree that this board shall be "composed exclusively of members of the same medical society."

I am aware of the distinction which Dr. Potter so clearly draws between "members" and "delegates" (although he subsequently confuses them altogether as members), and I am also aware that eligibility to membership is a very different thing from membership, as but two per annum out of the many "eligibles" could be elected until recently. Accepting Dr. Potter's statement that there are now 229 members, the Act declares that from what I must still call "a small circle" must be "exclusively" appointed the examining board to represent the regular medical profession.

Furthermore, I entertain strong doubt of the safety of the assertion that a quorum of members

and delegates can be trusted to speak for a constituency of "upwards of 4,000 physicians." They certainly did not so speak when, in 1882, without preliminary warning to the profession, fifty-two of them enacted a "new code" of ethics, cutting the society loose from the national Association, with the result of eliciting protests from forty out of the sixty county societies. They were not so speaking in 1884, when, out of 5,002 physicians, but 1,040 expressed themselves in favor of this "new code." Nor are they more entitled so to speak to-day.

THE JOURNAL'S "editorial commendation" was, I suspect, misapplied to the society in question by a *lapsus penna*, and intended for the New York State Medical Association, founded for the maintenance of the national code of ethics, since its "plan of organization" alone provides the system of district branches which was commended.

ALFRED L. CARROLL.

30 West 59th street, New York.

NECROLOGY.

J. W. Heron, M.D.

Dr. J. W. Heron, a medical missionary and superintendent of the Royal Hospital of Korea, died at Seoul, the capital of that country, on July 31, of dysentery. Dr. Heron is said to have enjoyed, in a peculiar degree, the confidence of the king and of the foreign colony.

MISCELLANY.

INSANITY IN ENGLAND.—The report of the English commissioners in lunacy states that the total number of lunatics, idiots, and persons of unsound mind under official cognizance in England and Wales on January 1st last was 86,067, being an increase of 1,727 as compared with January 1, 1889.

LETTERS RECEIVED.

Dr. John Casson, Alexia, La.; Julia H. Murphy, Mercer, Pa.; Dr. W. M. Lewis, Greensburg, Ky.; Dr. W. C. Townes, Chattanooga, Tenn.; Miner & Elbreg, Indianapolis; Dr. G. F. Cook, Oxford, O.; Dr. H. Durand, Paris, France; Dr. C. G. Cannaday, Roanoke City, Va.; Dr. W. F. Rochelle, Jackson, Tenn.; Dr. Edw. A. Sawyer, Gardner, Mass.; Dr. A. F. Walter, Gladbrook, Ia.; Dr. J. C. Lange, Pittsburgh, Pa.; Dr. T. G. Horn, Colorado Springs, Col.; W. D. Kline, Nashville, Tenn.; Dr. Chas. H. Shepard, Brooklyn, N. Y.; J. F. Madden, New York; Dr. R. S. Brice, Keota, Ia.; Dr. E. Pyncheon, R. G. Dun & Co., Chicago; Dr. John P. Stoddard, Muskegon, Mich.; Miss Kennedy, Allegheny, Pa.; Jas. Black, Denver, Col.; Dr. Bullard, Columbus, Ga.; Dr. J. G. Meachem, Racine, Wis.; Lea Bros. & Co., Philadelphia; Dr. W. S. Watson, Matteawan, N. Y.; Dr. C. A. Eastman, Winthrop, Mass.; Dr. J. B. Mattison, Brooklyn, N. Y.; The Mutual Life Ins. Co., New York; Canton Surgical and Dental Chair Co., Canton, O.

Official List of Changes in the Stations and Officers Serving in the Medical Department, Army, from August 30, 1890, to September

First Lieut. Theodore F. DeWitt, Asst. Surgeon is granted leave of absence for one month, to take effect September 15, 1890. S. O. 76, Hdqrs. Texas, San Antonio, Tex., September 1, 1890.

APPOINTMENT.

Col. Jedediah H. Baxter, Chief Medical Purveyor, Surgeon-General, with the rank of Brigadier-General, August 16, 1890. Vice Moore, retired from active service. A. G. O., Hdqrs. of the Army, Washington, D. C., September 1, 1890.

Official List of Changes in the Medical Corps of Navy for the Week Ending September 6, 1890

Surgeon J. C. Wise, detached from Torpedo Station to the U. S. S. "Alliance."
Surgeon Paul Fitzsimons, ordered to the Torpedo Station, Newport, R. I.

Surgeon George A. Bright, detached from the U. S. S. "Constellation," and to Naval Academy.
Asst. Surgeon F. W. Olcott, promoted to be P. A. Surgeon, U. S. Navy.

P. A. Surgeon A. R. Wentworth requests to withdraw his resignation—granted.

P. A. Surgeon M. H. Crawford, detached from the U. S. S. "Monongahela" and granted two months' leave of absence.

Asst. Surgeon James F. Keeney, detached from the U. S. S. "Richmond," and granted two months' leave of absence.

Asst. Surgeon Chas. H. T. Lowndes, detached from the U. S. S. "Richmond," and ordered to the U. S. S. "Richmond."

Official List of Changes of Stations and Duties of Medical Officers of the U. S. Marine-Hospital Service for the Two Weeks Ending July 5, 1890.

Surgeon W. H. H. Hutton, ordered to Washington, D. C., for special duty. June 23, 1890.

Surgeon W. H. Long, granted leave of absence for 15 days. July 2, 1890.

Surgeon H. W. Austin, when relieved at Chicago, Ill., report in person to the Supervising Surgeon-General, July 5, 1890.

Surgeon Fairfax Irwin, to proceed to Biloxi, Miss., for special duty. July 2, 1890.

Surgeon F. W. Mead, relieved from duty at St. Louis, Mo., to assume command of the Service at Chicago, Ill. July 5, 1890.

P. A. Surgeon S. T. Armstrong, granted leave of absence until August 7, 1890. June 24, 1890.

P. A. Surgeon P. C. Kalloch, relieved from duty at Francisco, Cal., to assume command of the Service at St. Louis, Mo. July 5, 1890.

Asst. Surgeon T. B. Perry, granted leave of absence ten days. July 2, 1890. Upon expiration of leave, proceed to Norfolk, Va., for temporary duty. July 1890.

Asst. Surgeon J. O. Cobb, to proceed to St. Louis, Mo., for temporary duty. July 5, 1890.

Asst. Surgeon B. W. Brown, to proceed to San Francisco, Cal., for temporary duty. June 23, 1890.

RESIGNATION.

P. A. Surgeon S. T. Armstrong, resignation accepted, by direction of the President, to take effect August 7, 1890. June 24, 1890.

APPOINTMENT.

Asst. Surgeon B. W. Brown, commissioned as an Asst. Surgeon by the President. June 23, 1890.

OMITTED FROM PREVIOUS LIST.

Surgeon P. H. Bailhache, to proceed to Eureka, Cal., and Astoria, Ore., as inspector. June 5, 1890.

